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Frozen Foods for Institutional Use[1]

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THE future of frozen foods is a matter for challenging speculation and is dependent upon many factors. During recent wartime shortages, when canned foods have been rationed and frozen foods have been point-free, people have turned to frozen foods as a boon to their tables. For our purposes at present, we shall consider possibilities not so much for the immediate future as for the long-range planning when our present food crisis is an experience of the past.

When we come to consider the possibilities of the future for frozen foods in institutional kitchens, we are reminded that the first group to see and take advantage of the merits of frozen foods were institutions. Foods preserved by this means were quickly accepted by institutions because of their tremendous help in labor problems and because of their close resemblance, in many instances, to corresponding fresh foods.

However, the use of frozen foods to date, in institutional kitchens, has been by no means without problems. Freezer storage space is required for holding frozen foods and is not always adequate for the purpose. A holding room with a temperature not above 0°F. is essential if samples are to be stored any length of time.

Without doubt, one of the most serious problems encountered in the use of at least certain frozen foods in better institutions is the question of quality. Unfortunately, the quality of some frozen foods marketed in institutional size packages is definitely inferior to corresponding consumer packages. This fact is to be regretted for it has turned some discriminating managers against the use of frozen foods in their kitchens. The cause and cure of this problem is probably one of price. The bulk demand has been for low priced products in institutions where cost has mattered more than quality. It is greatly to be hoped that sufficient pressure for high quality products will be brought upon the frozen food industry, for this type of merchandise to be made available in the future. It would seem that high quality would be an advantage to frozen food packers as well as to institutions and that a large enough number of restaurant managers would be willing to pay the difference in cost to warrant the marketing of good products.

As food becomes more plentiful, the factor of supply and demand may automatically bring about an improvement in this direction. In many cases, poor quality frozen foods have been purchased because there has been little choice. As good quality canned foods become available, competition will be keen and the frozen food industry will surely realize the need for more consistently good fresh material, careful workmanship in the freezing plant, and appropriate methods of distribution.

Pressure also needs to be brought upon the frozen food industry for a satisfactory grading system for products. It is well established that a bona fide set of grades for a given food provides the best basis for intelligent buying. For products such as meats, popular fruits, vegetables, and any other frozen items purchased in large quantities, this is particularly important. The selection of frozen foods at the present time is especially difficult because of the many new brands which are appearing on the market. It would be of tremendous advantage if various grades of frozen green beans, peas, and lima beans were available, for instance, from which the dietitian could choose according to her needs. Where two dining rooms were operated by one firm (one high priced and one low priced) such a possibility would have its obvious advantages to the buyer who would probably select two grades of many frozen foods. However, some means must be found to absorb the 5 to 10 per cent lowest quality frozen food or the grading system will not be profitable.

Another problem in connection with frozen foods for institutional use has had to do with questions concerning the best procedures in using them. Many people are still in a quandary as to which frozen foods must be defrosted before cooking and as to what defrosting procedure is best. To be sure, some of the institutional packs of frozen foods are so poor that the method of handling them in the kitchen may seem to have little effect one way or another. But as quality improves, it will behoove us to learn the approved methods of handling to retain

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quality. The freezing process tends to stabilize the green color of vegetables. For this reason, frozen vegetables can stand considerable abuse and still reach the table with an attractive green color. The light colored fruits such as peaches, when treated with ascorbic acid to retard darkening upon exposure to air, do not present the same serious problems in handling as formerly. However, in general, once frozen foods are removed from freezer storage, they become perishable items. They are not difficult to handle, but careful observance of a few simple rules is essential if the highest possible quality is to be obtained.

When major developments in frozen foods for the future are considered, the increase in the amount of frozen meat to be marketed should receive our attention. Recently, several packing houses have developed limited facilities for freezing both retail and wholesale cuts of meat. For distribution to retail stores, the meat is cut in portions for consumer purchase, and wrapped in transparent film in order that the consumer can see what she is buying. If this method of distributing meat is adopted extensively, the unsightly butcher counter of many retail stores will become a thing of the past. Similarly, distribution of frozen cuts of meat for institutional use may revolutionize the meat operations in institution kitchens. This may seem to imply an increase in the cost of meat to institutions but this is not necessarily the case. It is possible for the frozen meat to be boned before leaving the packing house, thereby lowering transportation charges. Also, a larger portion of the carcass "waste" is left, much of which the packer is able to utilize in the preparation of by-products. This is another factor which can reduce the price which the packer requires for the meat distributed to institutions.

Eviscerated frozen poultry is another product for the future. Chefs are looking forward to receiving frozen split broilers with matching halves appropriately wrapped, and fryers individually wrapped in slim boxes which will pack advantageously.

The frozen food developments which are receiving the greatest interest at present are the so-called frozen "specialties." It is now recognized that a large number of prepared foods, (some cooked and others ready for cooking) can be frozen successfully. This major possibility deserves serious attention from dietitians.

It is no doubt the specialties which require a considerable number of ingredients and which also require some time to prepare that are most in demand. Commercially prepared frozen soups are available, as well as a number of main course luncheon dishes, various cooked meat and fish dishes such as stews and Newburgs, and meat sauces. Some puddings and prepared salads, such as tomato aspic and cheese salad, are on the market. Some of the most promising items are those from the bakery—yeast rolls, pies, cakes, and biscuits, frozen either before or after baking.

For several years numerous research laboratories have been investigating the possibilities of just such a wide variety of frozen products, and convincing evidence has been obtained that a very high quality is possible after freezer storage of six or even twelve months. Numerous statements to this effect have already been published and the reports have originated from bona fide research laboratories.

It seems that most benefits introduce problems of one type or another, and these favorable results concerning frozen foods specialties are no exception. Rumors have started to the effect that "anything" can be frozen, held in freezer storage as long as desired, and months later the same product is available upon reheating. It should be remembered that the success reported by various laboratories has depended upon well controlled work. Ingredients were carefully chosen and accurately measured or weighed. Precise techniques were used in preparing the products, and the products were appropriately packaged. Suitable freezing and freezer storage temperatures were used and finally, good procedures were used in preparing the product for serving. Poor quality could readily have resulted if care had not been exercised at each of these stages.

Unaware of the factors controlling success, numerous inexperienced packers of frozen foods are putting on the market specialties which are of second-rate or even third-rate quality. When food is scarce, almost any product is salable and hence these products are finding some acceptance. Poor quality merchandise is detrimental to any industry at any time, however, and it is greatly to be regretted that poor quality frozen specialties are being marketed. Certainly at the prices which are being charged for them, they will not be tolerated long.

What are some of the problems in connection with frozen specialties—what are some of the pitfalls and how can they be avoided?

Separation or "curdling" of thickened sauces and gravies seems to be one of the chief troubles. When such products as chicken á la king, creamed tuna fish, and similar products are reheated in a double boiler for serving, a watery layer separates. A small amount of stirring is usually sufficient to make the mixture fairly smooth again, but the appearance of the product when separated is apt to create a poor impression and hence the desire to find a means of avoiding the separation entirely. Thoroughly combining ingredients in the original sauce will no doubt decrease the tendency to separate but homogenization is apt to be required in some instances, and the use of different thickening agents and stabilizers may be necessary.

The development of "off-flavors" in some products which are held in freezer storage for appreciable lengths of time, can be a serious problem. Most of

us have at some time encountered the "hay-like" flavor of frozen green beans that were insufficiently blanched. Other "off-flavors" will develop under adverse conditions, frequently as a result of an oxidative process in one or more food constituents. To control these elusive factors, considerable research will be necessary. In the meantime, some ingredients known to cause readily the development of "off-flavors" should be minimized—as turkey fat and pork fat.

Further observations are needed concerning the effect of freezer storage on the flavor of some seasonings. It seems that the flavor of some seasoning materials, such as pepper, is accentuated during freezer storage, whereas, the flavor of others grows milder. The flavor of salt grows milder unless a protein food such as fish has previously undergone putrefaction and in this case the salt flavor becomes more pronounced during storage. Such changes are for the most part not marked enough to make a product utterly unacceptable but when we are seeking top quality, these questions must have attention.

Deterioration during freezer storage of various leavened, unbaked products presents a problem. Unbaked yeast rolls, biscuits, and cakes, leavened with baking powder can all be satisfactory if held in freezer storage only a short time, but if storage is prolonged, they may not rise well. This is one argument in favor of baking the products before they are frozen. From many standpoints, however, it is desirable to market the unbaked product and let the consumer bake it in her own oven. If this is to be done successfully without putting too short a time limit on the storage period, some modification in the leavening seems necessary.

Somewhat special care is necessary in the preparation of pie crust for frozen pies—especially the dough for the lower crust—to prevent sogginess. However, fruit pie may be prepared by standard procedures, but instead of baking the pie it may be packaged and frozen, then later transferred directly from freezer storage to the oven. Such a pie bakes more quickly and more satisfactorily than might be expected. The explanation in part for this may be that the lower crust begins baking while the interior of the pie is still frozen and hence before the fruit juices penetrate the lower crust to make it soggy. The addition of special ingredients to the lower crust may of course aid in preventing sogginess and in giving an attractive golden color to the pie.

Some of the problems of which we are aware in connection with frozen food specialties, depend upon fundamental research for their solution, and time will be required for learning the answers. However, if due attention is paid to what is already known concerning quality control in precooked frozen foods, a considerable variety of specialties can be marketed successfully. Caution must be exercised, however, in the time of storage. Also, it must be remembered that if the storage temperature is above 0°F., the time for which the food can be held is substantially reduced.

It seems safe to assume that we shall see increasing amounts of frozen prepared products in use—some of them already cooked, others ready for baking. It is extremely interesting to consider how this new development may affect institutional kitchens and dining-rooms of various types. There are several important ways in which this development will be of real interest to institutions.

Several chain restaurants already have plans for freezing their chief dishes in a large, central kitchen and distributing the frozen product to the various restaurants. The advantages in this plan are evident. Instead of a highly paid (and "difficult-to-get") chef in every restaurant, one or two skilled chefs in the central kitchen are all that are necessary. The reheating or baking of the frozen product can be done by following routine directions. Such a plan dispenses with cooking failures due to inexperienced or overworked help, and it dispenses with the uncertain factor of varying quality from day to day. To be sure, the success of this scheme will depend largely upon the care and accuracy of the key work done in the central kitchen, upon suitable procedures for quick freezing and freezer storage, and upon efficient transportation methods. The smaller restaurants of a large chain will be able to offer more varied menus than they can offer at present. Also careful calculations indicate that the total operating expenses of the chain will be less than at present.

Another benefit from this development is that specialty dishes from famous restaurants are being frozen and made available in different parts of the country. This can, of course, mean a substantial profit to a restaurant and can also serve as far-spread advertising. Such a side line operation in connection with any restaurant will require expert information concerning the treatment which the frozen specialties should have. Since the frozen foods will not be sterilized, it is extremely important that they be handled in such a way as to prevent bacteriological contamination. After cooking, for instance, they should be cooled rapidly. Standing for appreciable lengths of time while warm can have disastrous effects. The food should be kept covered while cooling, however, since valuable flavoring materials would escape with steam from an uncovered container and the product when served would have the uninteresting flavor of the usual leftover dish. Each specialty should be submitted to storage tests and the formula modified according to the results.

Freezing of prepared dishes can also be of major assistance in institutional kitchens as a means of solving problems of peak loads. In preparing for peak loads, some parts of the menu may be cooked ahead of time and frozen. Planning in this manner

can be of tremendous help in minimizing the labor complications which often accompany the serving of unusually large groups. Extra help for such emergencies is often difficult to obtain and is seldom satisfactory. It would, therefore, seem that advance preparation of this nature offers a good solution.

The freezing of prepared dishes also can be a means of avoiding waste of large amounts of food which are left from one occasion or another. No manager, no matter how competent, can avoid the occasional experience of serving a smaller number of people than expected and of, therefore, being confronted with the problem of what to do with food that is left. Often it would be advantageous to freeze it and use it later rather than either waste it or incorporate it into the menu within a day or two. Certainly such freezing procedures can help in the necessary adjustment wherever uncertain numbers is one of the kitchen worries.

Institutions cannot proceed, however, in the freezing of these prepared dishes without careful planning to insure success. In some cases, expert advice from frozen food authorities can be sufficient to pave the way for freezing operations. In establishments where large quantities of food and a number of varieties of food will be frozen, it will be necessary to engage a full-time person to take charge of the operations. Several such appointments have already been made in connection with the freezing of food in central kitchens for chain restaurants.

Also, if such freezing operations are to be successful, appropriate equipment for freezing and for storing will be required. Dodging the need for such equipment will prove to be short-sighted.

Best commercial freezing is accomplished at temperatures between −30° and −50°F., but for many purposes temperatures between −10° and −25°F. can be used. In addition to the temperature itself, any conditions which affect rate of crystallization are important. Such conditions include air movements which accelerate rate of freezing, and also contact of the freezing container with the cold surface of freezing plates.

Most institutions will require facilities for storing frozen foods for periods considerably longer than one week and for this purpose, storage temperatures of 0°F. or slightly lower, are required. Capacity requirements for this purpose will vary from a few hundred pounds to carloads of frozen food according to the institution. Many manufacturers of equipment are announcing their intentions of building freezers and freezer storage facilities. It should be remembered that the requirements for this type of equipment are rigid and more difficult to meet than the requirements of ordinary refrigeration. Since hundreds of dollars will be invested in the frozen food to be stored, it will pay to have assurance that the storage facilities will be adequate.

There is every prospect that frozen foods will be of much wider interest to the dietitian in the future than they have been in the past. Toward this end, food executives should feel their own responsibility in exerting pressure upon the frozen food industry to make the required quality available and to adopt satisfactory grading methods for frozen products. Unfortunately, the industry does not by any means put into practice all that is known concerning quality control, and much still remains to be learned. Each restaurant manager, hospital dietitian, or other food executive will need to keep abreast of the developments in frozen foods and take advantage of them as best suited to his or her own particular organization. There seems no doubt whatever that the expansion ahead in this field will be of special value in institutional kitchens.

School Lunch Bill, H. R. 3370

THE SCHOOL LUNCH BILL, H. R. 3370 was accepted by the House on May 23, by the Senate on May 24, and was signed by President Truman on June 4.

The bill underwent revision and the major portion of Title II, which provided for funds for nutrition education, was deleted. In addition to the funds for actual provision of lunches for children, the present legislation authorizes the Secretary of Agriculture to use up to ten million dollars annually to provide equipment for storing, preparing, and serving foods in schools.

State-local contributions must match federal funds dollar for dollar through 1950. However, the government contribution decreases thereafter as follows: From 1951 through 1955, $1 of federal funds for each $1.50 of state-local funds; 1956 and thereafter $1 of federal funds for each $3 of state-local funds.

Retention of Nutrients in Quick-Frozen Foods

Review of Literature

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THE object of this review is to survey available literature relative to the retention of nutrients in quick-frozen foods. Completeness in covering the subject is not professed. Although an effort has been made to confine this paper to nutritional aspects during and after freezing, it is recognized that preliminary problems relating to harvesting and transportation, economics, environmental and human factors, may also affect the nutrient content. The present report will be limited to a discussion of quick-freeze processing, storage, and cooking preparation of quick-frozen foods.

QUICK-FREEZE PROCESSING

The potentialities of frozen foods are recognized by the Armed services, the food industry, research and educational institutions, as they seek to supply foods which are nutritionally adequate and which can be served in natural and appetizing forms. In color, texture, flavor, and odor the frozen foods are more nearly like fresh produce than any other processed foods. Furthermore, the ready-to-cook form of frozen foods affords economies in handling and in preparation (1–14).

For both commercial and home use, two distinct types of freezing are employed: the "quick-freeze" method, which requires approximately one and a half hours to pre-cool the food and one half hour to reach the frozen state, and the "sharp-freeze" process, which requires 12 to 18 hours to pre-cool the food and 6 hours to bring it to the frozen state. The time element may vary with the size of the package or quantity of food to be frozen (13, 17). The most important part of both freezing processes is to obtain complete crystallization of the cell content substances between the tissues of the food. The effect of the rate or speed of reaching the "zone" of ice crystallization on the quality of a frozen food product remains a controversial issue (19, 26–36). Some foods retain more desirable qualities when frozen slowly and others require very rapid rates of freezing.

The disadvantages of frozen foods stem principally from a lack of mechanical equipment, the higher cost of production, and the necessity for a minimum of temperature fluctuation in processing and storage.

The goal desired is a frozen food which, upon thawing or cooking, regains its original appearance, texture, color, and flavor. The retention of nutrients in quick-frozen foods is dependent upon the following considerations: selection of varieties of food suitable for freezing; harvesting of the product at the stage of optimum quality; bacteriological control achieved by use of good sanitation in handling and processing; control of frozen storage temperature fluctuation of 0° to 5°F. or below; prevention of complete or partial thawing or defrosting; the use of no water or as small an amount of boiling water as possible in the cooking preparation; and immediate serving of the food after preparation (13, 16–19). The freezing process itself includes nine steps: preparation in edible form, weighing, washing, grading, blanching to prevent the growth of microorganisms and to reduce the enzyme reaction, cooling, inspecting, freezing, and packaging (7, 20–25).

It has been found that the chemical changes which take place during actual freezing are limited, as compared to the storage changes. However, if hydrolysis, oxidation, and action of the enzymes are not controlled during the freezing of foods, then storage changes are of greater magnitude (36). Insufficient blanching, as well as delay in the handling of fresh produce for freezing, will result in activation of enzymes through their oxidative and reductive activities, with resultant discoloration, loss of flavor, and spoilage (27, 30, 31, 34, 37, 38).

The inactivation of enzymes and microorganisms is accomplished by the blanching of the foods with both wet and dry heat for varied periods of time ranging from one to three minutes at temperatures of 185° to 248°F. (15, 39–49). The use of electronic heat (high frequency electrical conductivity) has recently been encouraged for use during blanching

(50, 51). If this method can be applied commercially, it has distinct advantages in increased simplicity, better control, uniform heating, reduced losses of soluble nutrients, and retention of flavor in the products. As yet the feasibility of using electronic heat during the blanching process has not been studied to the extent of meriting a statement. Harmful oxidative changes in foods may also be retarded by the administration of oxygen-free gases, or the addition of strong sugar solutions, or ascorbic acid directly into the foods (46, 52–54).

In reviewing the literature on work done over the past ten years on the retention of nutrients in frozen foods, there seemed to be general agreement regarding the small loss of minerals which is partly due to the fact that a much shorter cooking period is required than for fresh foods. Some reports state that commercial quick-freezing processes may increase somewhat the availability of iron (58, 59). Also, if there is no prolonged storage of the frozen food, there is no change in either the protein or carbohydrate content of the food (56, 57).

The losses and retention of vitamins will vary during the freezing process and under subsequent storage. Carotene is the most stable of the vitamins provided the foods are not subjected to ultra-violet rays (15, 21, 40, 64–67). Rapid losses which vary from 15 to 45 per cent are found in the thiamin content of foods with only slight losses in riboflavin content dependent upon the method and length of processing (15, 40, 60–62, 68, 69). The B-complex vitamins are most stable in an acid media. While vitamin C losses occur during the blanching and the chilling process, a greater variation results from varietal differences. No harmful effects on vitamin C result from the actual freezing but the blanching and chilling processes account for losses ranging from 15 to 50 per cent.

Blanching by hot water scalding seems to cause a greater loss of nutrients than blanching by steaming. An additional loss of nutrients occurs during the cooling process which follows the blanching (15, 20, 40, 45, 65, 66, 70–78).

STORAGE

The most direct causes of spoilage and deterioration of food products during storage are growth of microorganisms and chemical changes within the product. When fresh food is stored at a temperature of approximately 40°F., it is fairly certain that harmful microorganisms are held in check. However, with a storage temperature of 0° to 5°F., there is a greater retention of texture, flavor, and nutrients (79).

The effect of storage, temperature, and time on the quality of pork preserved by freezing is an important problem. While the juiciness and tenderness do not change in the product, the flavor of the fat and aroma do deteriorate. The palatability was not found to improve at any storage temperature between 0°F. to 16°F. when stored up to 33 weeks (80). If there is long continued frozen storage of certain proteins and fats, there may be denaturation and development of rancidity as in the case of the proteins and unsaturated fats in fish. Seasonings used on meats have also been found to have an effect on the palatibility of such items as frozen ground beef and ground pork sausage when stored. The solution to these problems may be found after further study of experimental methods and processing steps.

During the quick-freezing of most frozen foods, there is an approximate loss of 15 per cent of the carotene content, but storage under the usual conditions at −4°F. for six months has no significant effect (15, 57). Some foods lost provitamin A after six months of storage. At storage temperatures above 0°F. there is a gradual decrease in both carotene and vitamin A in green vegetables, oxidation and enzyme activity causing the most harm (37, 64, 81–82). A review of research (40) covering the effect of processing and storage on vitamin A and carotene reveals that there is no significant difference in the vitamin A content of frozen food when it is prepared for the table (67, 83); there is no loss of vitamin A in frozen hen's eggs after a nine-year storage period (84), and while a little of the vitamin A is lost during the freezing process itself (65), commercially frozen foods retain, substantially unimpaired, their original vitamin A content during storage.

There is an average loss of 15 per cent of the thiamin in vegetables during the freezing process. In addition, there are increased or almost doubled losses of this vitamin and ascorbic acid during a year's storage of the foods, possibly attributable to the activity of enzymes, even though the foods were stored at temperatures as low as −4°F. However, there is no significant loss of riboflavin noted under these conditions (68–73). Most authorities agree that frozen products stored at temperatures of −9.4° to −20.2°F. do not lose much of the ascorbic acid content. A recent development for preparation of concentrated citrus fruit juices by partial removal of the water through freezing shows that the products retain color, flavor, and 85 per cent of the original ascorbic acid content after a two-year storage period at a temperature of 0°F. (76).

An experiment on the value of frozen baby foods is reported here because of the widespread use of these foods for hospital and special dietary care. Both fruits and vegetables in purée or sieved form retain their color, flavor, and odor better when blanched before quick-freezing and when storage is maintained at 0°F. Nutritional work done on some quick-frozen baby food purées of cooked fruits and vegetables shows that spinach retains 63 per cent of its vitamin C and 53 per cent thiamin; peas retain 76 per cent of vitamin C, and 77 per cent of thiamin for

storage periods of six months to over a year at a temperature of 0°F. (85).

One group of research workers reports retention of ascorbic acid in quick-frozen vegetables under freezer-locker storage conditions as follows: cauliflower retains a total of 40 per cent of the original vitamin C after a nine-month storage period; dark podded Thomas Laxton peas retain 79, 70, 59, and 53 per cent of the original ascorbic acid values after one, three, six, and nine months' storage respectively; stringless black Valentine snap beans have a retention of only 23 per cent of the original ascorbic acid after nine months in freezer storage; Bloomsdale Savoy spinach retains 43, 36, 30 and 20 per cent of the original vitamin C content after one, three, six, and nine months respectively in freezer-locker storage; Mesaba potatoes show a sharp, decrease of the vitamin at the end of three weeks' storage at 0°F. (77, 86, 87).

FOOD PREPARATION

The most frequently used cooking methods are boiling, steaming, baking, and frying. It cannot be overemphasized that, in cooking preparation, foods of high nutritional content may lose their value to the extent that they are actually poor sources of all or certain of the nutrients.

In the study of the effect of defrosting on the vitamin content of frozen snap beans it was found that, for the best retention of thiamin and riboflavin, the vegetables should be cooked directly from the solidly frozen state (75). This method of cooking from the unthawed frozen state is being found applicable to many frozen products.

There are numerous reports covering the effect of different cooking methods on the vitamin C content of foods. Three ways of cooking (steam, standard pressure cooker, and boiling) quick-frozen Brussels sprouts, cauliflower, lima beans, peas, and spinach have been studied with the following results: the ascorbic acid destruction was less than 15 per cent in all instances; approximately 70 to 88 per cent of the vitamin was recovered in boiled vegetables and 13 to 30 per cent of the vitamin in the cooking water; steaming produced the same results with peas and spinach, showing from 68 to 73 per cent of the vitamin retained by the vegetables and from 18 to 21 per cent of the vitamin leached out in the steamer; Brussels sprouts and cauliflower retained 94 and 84 per cent respectively, of their ascorbic acid when cooked by the steamer method. Vitamin C was found to be highest in vegetables cooked in the pressure saucepans, although this method did not always yield the most palatable product if the pressure became too high or was not carefully regulated (88–90).

The same investigators made further correlations of the ascorbic acid content of the same quick-frozen vegetables with the changes that might have taken place due to the varied composition of the cooking utensils and to the volume of cooking water (91). These workers reported that the composition of the containers had very little effect on the vitamin content. However, the leaching of the vitamin from the foods varied with each vegetable: 12 to 15 per cent from Brussels sprouts, 23 to 29 per cent from cauliflower; 20 to 28 per cent from peas; 24 to 28 per cent from spinach, and 31 to 36 per cent from lima beans. These losses in ascorbic acid remained about the same whether the foods were covered or uncovered during boiling but the losses of vitamin C increased as the volume of water increased (92).

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Fruits and Vegetables Encased in Pliofilm

A NEW use of Pliofilm as a protective food wrapping has been developed by the Florida Agricultural Experiment Station. This plastic is very much thinner and tougher than Cellophane and when used as a packaging agent allows fruits and vegetables to continue to live after picking. In this wrapper, foods metabolize and continue to breathe out carbon dioxide, hence can be preserved for two years in ordinary cold storage.

The process of Pliofilming foods is effected with a machine that gently heats foot-square surfaces of a band of Pliofilm, which is then hand-drawn through the machine. The lightly-heated plastic readily conforms to any object encased in it. An orange, carrot, tomato, or ear of corn is wrapped in it, given a twist and the Pliofilm cut off at the top. This new method of packaging fresh fruits and vegetables has many advantages; the products can be picked full ripe, Pliofilmed and then shipped to the ultimate consumer with all the flavor and nutritional advantages retained. Already ears of corn shipped long distances in Pliofilm have reached their destination in such excellent shape that they have sold at considerable profit over the less desirable local corn offered in its original husk. The process is most economical. For example, oranges can be Pliofilmed for one third the cost of wrapping them in tissue paper.

Stability of Vitamins in Stored Ice Cream[1]

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ICE cream has become an important component of the human dietary. The per capita consumption is reported to be about 3 gal. per year. This volume of ice cream contains significant amounts of valuable proteins, fats, carbohydrates, minerals, and vitamins. The proteins in ice cream are of animal origin and have superior biological value. In fact, milk protein, which is a universal constituent of ice cream, has a value for building body tissues that is exceeded only by egg protein and frequently eggs are also used in the manufacture of ice cream. According to Mitchell and Carman (1) the biological values of these proteins are 85 for milk and 94 for egg as compared with 69 for beef, 62 for veal, and 52 for white flour. The milk fat, or cream, contains a wide variety of fatty acids and has unusual nutritive qualities, particularly for children. Furthermore, milk fat has a very high coefficient of digestibility: Langworthy and Holmes (2) found butter was 97 per cent digested by a group of men students between 20 and 30 years of age. The carbohydrates, of which cane sugar is a major component, supply readily available energy, and the lactose portion is believed to exert a favorable influence upon the development of desirable intestinal bacteria. Ice cream also contains a wide variety of minerals, many of which are essential for normal body processes.

Obviously, the number and amount of vitamins present in ice cream when it is eaten depends upon the type and quantity of the ingredients used, the method of manufacture, and the storage conditions between its preparation and its ultimate consumption. In an earlier study (3) of ice cream of known composition Holmes, Kuzmeski, Jones, and Canavan found 0.26 mg. and 0.10 mg. of riboflavin and carotene per 100 gm.; no reduced ascorbic acid could be detected, no doubt because of the large amount of air occluded in the ice cream during the manufacturing process. Since only a relatively small amount of commercial ice cream is consumed at the time of its manufacture, a question naturally arose regarding the stability of the vitamin content of ice cream during storage, and this study was conducted to obtain data on this point.

[1] Received for publication, March 1, 1946. Contribution No. 590 of the Massachusetts Agricultural Experiment Station.

EXPERIMENTAL

The formula used for the manufacture of the ice cream was fresh whole milk 56.3 per cent, fresh cream (40 per cent fat) 24.4 per cent, cane sugar 15.0 per cent, skim milk powder 4.0 per cent, and dehydrated gelatin powder 0.3 per cent. All the ingredients were weighed. This formula produces an ice cream that contains about 12 per cent of fat. The ice cream used in this study was manufactured on a plant scale under conditions similar to those employed in average commercial ice cream plants. The milk and cream were intimately mixed, the skim milk powder was added slowly and thoroughly incorporated into the milk and cream. This mixture was heated, and then the thoroughly blended sugar and powdered gelatin were added. When all the ingredients had been incorporated into a homogeneous liquid, the mix was pasteurized at approximately 143°F. for 30 min. Immediately following pasteurization the mix was run through a homogenizer operating at about 2500 lb. pressure per sq. in., which served to reduce the fat to minute globules and produce a homogeneous product. The mix was rapidly cooled to 40°F. and ripened for 18 hr. At this stage of manufacture a U. S. gal. of the ice cream weighed $9\frac{1}{4}$ lb. After the ice cream had been ripened, it was passed through a batch freezer and the appropriate flavor was added. Three extensively used flavors were used in this study. Thirty-two oz. of coffee extract, or 12 oz. of imitation maple flavor, or 6 oz. of vanilla were added per 100 lb. of ice cream. During the freezing process the flavor was intimately blended and air was whipped into the mix to produce an 85 per cent "overrun." In other words, the finished ice cream weighed 5 lb. per gal. or nearly one half its volume was occluded air. In commercial practice the "overrun" is frequently 100 or 110 per cent. Thus one half or more of the volume of such ice cream is occluded air. A sufficient amount of the coffee, vanilla, and maple ice cream was packed in round commercial 4 oz. cardboard containers to provide adequate samples for assays. These were stored in the commercial −10°F. refrigerator.

The ice cream was manufactured in August when the milk and cream should have had a relatively high carotene content, for the herd of Ayrshire, Guernsey, Holstein, Jersey, and Shorthorn cows were main-

tained on a well-developed pasture of vigorously growing mixed grasses. Incidentally it might be noted that the ice cream was placed in cold storage at the same season that the commercial and home canner puts vegetables into winter storage.

Since demand, manufacturing conditions, and distribution vary in different localities, the length of time that elapses between the manufacture and consumption of ice cream is extremely variable. It has been estimated that average commercial ice cream is two months or more old when it is eaten by the ultimate consumer, but the length of storage may be materially influenced when large producers build up reserve stocks in anticipation of sudden excessive holiday demands. Accordingly, it was decided to determine the ascorbic acid, carotene, and riboflavin content of ice cream just before and after seven months' storage. This period definitely exceeds the probable storage period of ice cream, but both commercial and home-canned vegetables may remain in storage for this period, and it seemed of interest to compare the stability of riboflavin and carotene in ice cream with that of canned vegetables.

The riboflavin, carotene, and reduced ascorbic acid contents of the coffee, maple, and vanilla ice cream before and after storage were determined by the assay procedures previously described by Holmes and associates (1).

RESULTS

The riboflavin content of the freshly manufactured ice cream (Table 1) varied somewhat for the different samples, but the average values for the three flavors ranged from .253 mg. per 100 gm. to .270 mg. with an average of .259 mg. After storage the averages for the three flavors varied from .236 mg. of riboflavin per 100 gm. of ice cream to .256 mg. and averaged .245 mg. per 100 gm. for the 24 samples that were assayed. The decrease represents a 5.4 per cent loss of riboflavin during seven months' storage.

The carotene content of eight samples of each of three flavors of ice cream before storage ranged from .101 mg. per 100 gm. to .103 mg. with an average of .102 mg. When the ice cream was removed from storage, the average carotene values for the coffee, maple, and vanilla samples varied from .085 mg. per 100 gm. of ice cream to .089 mg. and the average for the 24 samples was .086 mg. The difference represents a loss of 15.7 per cent carotene during storage.

Although over 30 samples of ice cream were assayed for reduced ascorbic acid within a day or two of its manufacture, no ascorbic acid was detected. Since the fresh whole raw milk contributed approximately 20 mg. of reduced ascorbic acid per liter, it is assumed that this was rapidly oxidized by the occluded air which constituted nearly one half the volume of the ice cream.

The hydrogen ion concentration was determined after the storage period. The values for the individual samples varied, but the pH values for the different flavors were quite similar, the range being from 6.25 to 6.37 with an average of 6.36.

It is interesting to compare these losses of 5.4 per cent for riboflavin and 15.7 per cent for carotene during seven months' storage of ice cream with the losses of these vitamins from other foods stored in cans for similar periods. McConnell, Esselen, and Guggenberg (4) reported no loss of carotene, during six months' storage, from asparagus, snap beans, and peas canned by commercial procedures, but the carotene content of corn gradually decreased with a loss of 8 to 12 per cent at the end of nine months' storage. Filios and Esselen (5) found a 30 per cent loss of riboflavin during twelve months' storage of mushrooms. Guerrant, Vavich and Dutcher (6) studied the influence of time and temperature on the stability of vitamins in canned foods. They found that for seven months at 30°F. the carotene loss was about 8 per cent for tomato juice, 23 per cent for green lima beans, and 15 per cent for whole kernel yellow corn; and the riboflavin loss was about 3 per cent for tomato juice with no loss for green lima beans and corn. Fellers and Buck (7) concluded from a study of the retention of vitamins in glass-packed foods that about 15 per cent of carotene is lost from spinach, carrots, peas, and tomato juice during one year's storage at 36°F. These data indicate that the riboflavin and carotene in ice cream stored at −10°F. for seven months are fully as stable as these vitamins present in a variety of canned vegetables stored for a corresponding period of time.

TABLE 1

Stability of vitamins and hydrogen ion concentration of stored ice cream

SAMPLE	RIBOFLAVIN		CAROTENE		ASCORBIC ACID	HYDROGEN ION CONCENTRATION
	Before storage	After storage	Before storage	After storage	Before storage	After storage
	mg./100 gm.	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*pH*
1	.270	.256	.101	.085	0.0	6.35
2	.260	.253	.103	.088	0.0	6.33
3	.260	.246	.101	.085	0.0	6.35
4	.260	.245	.103	.089	0.0	6.30
5	.253	.242	.102	.086	0.0	6.25
6	.257	.237	.103	.086	0.0	6.37
7	.263	.246	.101	.086	0.0	6.36
8	.253	.236	.102	.087	0.0	6.26
Average	.259	.245	.102	.086	0.0	6.36

SUMMARY

Ice cream was manufactured under commercial ice cream plant conditions, from fresh whole milk, cream (40 per cent fat), cane sugar, and gelatin. Three flavors—coffee, maple, and vanilla—were used. The

"overrun" was 85 per cent or nearly one half of the volume of the ice cream was occluded air. Samples of each of the three flavors of ice cream were assayed before and after seven months' storage at −10°F. The vitamin loss during storage was riboflavin 5.4 per cent and carotene 15.7 per cent, which is comparable to the losses of these vitamins in a variety of canned vegetables during a corresponding storage period. Even though the fresh whole milk contained the normal amount of reduced ascorbic acid, none could be detected in the freshly manufactured ice cream, probably because of rapid oxidation by the air that was dispersed throughout the ice cream.

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U. S. Public Health Service to Hold Examinations for Dietitians

Dietitians will be examined in October for appointments in the Regular Commissioned Corps of the U. S. Public Health Service, Federal Security Agency. Positions now available in this career service are for dietitians with administrative and therapeutic skills, according to Surgeon General Thomas Parran.

The examination, to begin on October 7 in several metropolitan centers, will take the form of an interview, followed by physical and written examinations. The examining board will make recommendations to the Surgeon General, and approved candidates will then be appointed by the President of the United States with Congressional authority.

Commissions now open are for the grades of Junior Assistant Dietitian (comparable to the rank of Second Lieutenant in the Army); Assistant Dietitian (First Lieutenant); and Senior Assistant Dietitian (Captain). Salaries are the same as for officers of the armed forces of corresponding grades, ranging from $2,160 base pay a year for Junior Assistant Dietitian to $2,760 base pay for Senior Assistant Dietitian. When quarters and subsistence are not available on the station, allowance is provided in addition to base pay.

The Public Health Service was established in 1798 as the Marine Hospital Service for the care of America's merchant seamen. Through the years Congress has imposed additional duties on the Service so that its far-flung activities now touch upon every phase of health.

Today, nearly half a million persons annually are given medical care in 26 marine hospitals, all of which offer complete diagnostic, medical, and surgical services, including X-ray departments, dental clinics, and out-patient departments. The Service also operates two hospitals for the care of psychotics and persons addicted to habit-forming drugs and one for the care of lepers.

In addition to merchant seamen, beneficiaries entitled to care in marine hospitals include members and dependents of the U. S. Coast Guard, the U. S. Coast and Geodetic Survey, beneficiaries of the U. S. Employees' Compensation Commission, and officers and field personnel of the Public Health Service.

The Commissioned Corps of the Service offers a life-time career. As they qualify, officers may be examined for promotion to higher positions. The Service offers opportunities for advanced education and in-service training. Commissioned officers are given cumulative leave of 30 days for each full year of service and for every three years of duty (active), an increase of 5 per cent in base pay is provided.

Dietitians in the Commissioned Corps are assigned to hospitals of the Public Health Service located along the Atlantic and Pacific Coasts, the Great Lakes, and the larger inland waterways. Dietitians may also be assigned as consultants or for work in clinical research.

Dietitians interested in a commission with the Public Health Service should make application at once by writing to Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, Washington 25, D. C. Attention: Office of Dietetics. The letter should include the following information, according to Dietetic Consultant Marjorie J. Wood: name, age, address, name and address of college attended, date of graduation and degree received, name and address of hospital where student training was received, and any additional dietetic experience or training.

Dates and places of examinations will be announced in the September JOURNAL.

The Effect of Fresh Grapefruit Juice and Commercially Canned Tomato Juice on Calcium Retention[1]

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AN EXPERIMENT was conducted to find the effect of fresh California Marsh grapefruit juice and of commercially canned tomato juice on the calcium retention of the young growing female albino rat. Such a study is ultimately related to human nutrition because these juices are common articles in the American diet.

Lanford (1) fed young growing female rats 5 ml. of Florida non-Valencia orange juice per se daily in addition to a basal diet which contained 0.205 per cent calcium, 5 parts of ground whole wheat and 1 part of dried whole milk. It was found that there was improved assimilation of the dietary calcium.

Mallon and Lord (2) reported an investigation using 5 ml. of lemon juice per se daily as a supplement to a basal diet similar to that of Lanford, but yielding 0.166 per cent calcium. The lemon juice did not cause an increase or a decrease in the calcium retention of the young growing female rats.

EXPERIMENTAL PROCEDURE

Female albino rats used in the investigation were of a modified Wistar strain. The stock diet was, in per cent, yellow corn meal 45, whole wheat flour 28, powdered skim milk 18, alfalfa leaf meal 4, irradiated yeast 2, cod liver oil 2, calcium carbonate 0.5, and sodium chloride 0.5. The young rats were offspring of mothers reared on this same diet.

Two sets of five litter-mate pairs of female rats, paired according to weight and litter membership, were placed on the control and two experimental diets. The rats in the fresh grapefruit juice study were 24 days old at the beginning of the experiment and those in the canned tomato juice study, 28 days. The rats were fed until 60 days of age, at which time they were sacrificed for calcium analysis.

[1] Received for publication April 3, 1946.

The data on commercially canned tomato juice was presented by Rena S. Rosenblatt in partial fulfillment for the Master of Science degree in Home Economics.

The cages were of galvanized wire mesh and were fitted with a removable drawer at the bottom. The rats rested on a wire floor which was also made of galvanized wire mesh. Three times each week the paper lining in the drawers was changed, and at these times food dropped through the mesh floor was recovered and saved because the food consumption was an important factor in the experiment. Large sheets of black glazed paper, placed around each cage, caught any food scattered outside the cage. The amount of food scattered was small for each rat, and all was recovered and saved. Cages were large enough to permit free movement of the animals.

The basal diet in the two studies was the Sherman Diet 16, consisting of 5 parts of ground whole wheat and 1 part of dried whole milk with added sodium chloride, c.p., equivalent to 2 per cent of the weight of the wheat.

The grapefruit juice, obtained from grapefruit grown in the Coachella Valley in southern California, was hand reamed and strained. A commonly used brand of commercially canned tomato juice was selected. Each kind of juice was poured into small amber-colored glass bottles in which it was frozen. Each bottle held enough for one or two days' feedings, and each day only one such bottle of juice was thawed and immediately fed to the experimental rats.

In an attempt to keep the intake of the calcium for the rats somewhat the same in the grapefruit juice study, a weighed amount of the basal diet, estimated to be somewhat lower than their normal consumption, was given daily. The animals were irritable and difficult to handle. This was not true when the basal diet was given ad libitum in the tomato juice study, nor was it noted when ad libitum feeding was given to rats when the effect of lemon juice on calcium retention was studied by Mallon and Lord (2). All food offered was weighed and recorded daily. In addition, one member of each pair in the grapefruit juice study received a supplement of 5 ml. of fresh

grapefruit juice per se daily, and in the tomato juice study 5 ml. of commercially canned tomato juice per se. The procedure for feeding the juice to the experimental rats was as follows: In the late afternoon 5 ml. of the juice were mixed with a weighed amount of basal diet estimated to be consumed by morning. The basal diet was removed from the cages of the experimental rats in the evenings when the mixture of juice and basal diet was fed. In the morning the empty dishes were replaced by the dry basal food. Usually the rats eagerly consumed the juice supplements. Whenever small particles of the dried juice mixture remained, these were scraped carefully together and combined with the following night's feeding. In the grapefruit juice study, only two out of 175 juice feedings were not consumed, as shown in Table 1.

In the tomato juice study, the experimental rats consumed all feedings of the 5 ml. of juice, as shown in Table 2.

Analysis of carcass. Food was withheld from the animals 24 hours preceding the 60th day of age, at which time they were weighed and chloroformed. Although the animals had fasted 24 hours, some food remained in the gastro-intestinal tract and had to be removed; if not removed, a large and variable source of error would have been introduced because of the unassimilated food which contained calcium. The net body weight was considered as the final live weight minus the weight of the gastro-intestinal tract and its contents.

After the net weight of each 60-day-old animal was determined, the carcass was placed in a large crucible, dried, charred, and finally ashed in an electric muffle furnace until a pure white ash was obtained. The volumetric modification of the McCrudden (3) method was used in all calcium analyses with the pH value adjusted according to Shohl and Pedley (4). Triplicates of 10 ml. aliquots of dissolved ash from each carcass were analyzed. U. S. Bureau of Standards weights, volumetric flasks, and pipettes were used.

TABLE 1

Effect of fresh grapefruit juice on the calcium retention of female rats between the ages of 24 and 60 days

RAT NO.	DIET	BODY WEIGHT		GAIN IN WEIGHT	FOOD MIXTURE CONSUMED	GRAPEFRUIT JUICE CONSUMED*	TOTAL CALCIUM INTAKE	NET BODY WEIGHT 60 DAYS	BODY CALCIUM AT 60 DAYS (NET WEIGHT)			
		Initial 24 days	Final 60 days						Total calcium	% of net weight	Retained	Retained as % of calcium intake
		gm.	*gm.*	*gm.*	*gm.*	*ml.*	*mg.*	*gm.*	*mg.*		*mg.*	
1	Grapefruit juice	46.7	82.5	35.8	236.0	175	436	74.8	826	1.10	427	97.9
2	Control	44.8	75.0	30.2	239.6	0	431	69.5	787	1.13	405	94.0
3	Grapefruit juice	35.5	71.2	35.7	212.7	170	393	63.8	697	1.09	401	102.0
4	Control	29.0	57.9	28.9	210.6	0	379	52.4	575	1.10	339	89.4
5	Grapefruit juice	42.7	83.7	41.0	247.0	175	455	76.4	765	1.00	403	88.6
6	Control	42.7	69.7	27.0	249.4	0	449	64.5	743	1.15	381	84.8
7	Grapefruit juice	33.7	98.7	65.0	259.9	170	478	88.7	727	0.82	447	93.5
8	Control	35.4	100.4	65.0	285.3	0	514	87.8	753	0.86	458	89.1
9	Grapefruit juice	33.2	103.7	70.5	267.8	175	493	94.9	780	0.82	505	102.4
10	Control	32.2	103.1	70.9	271.6	0	489	92.8	717	0.77	451	92.2
	Means											
	Grapefruit juice	38.4	88.0	49.6	244.7	170 or 175	451	79.7± 8.3	759± 33	0.97± 0.09	437	96.9± 4.0
	Controls, paired to above	36.8	81.2	44.4	251.3	0	452	73.4± 11.3	715± 56	1.00± 0.12	409	89.9± 2.4

* Fed seven days a week.

The following explains what is meant by the "calcium retained as per cent of calcium intake," as given in Table 1. On analysis, six 24-day-old rats of the same strain, diet, and environmental conditions were found to have an average of 0.92 per cent calcium in their net body weights; hence it was assumed that the rats of the same strain which lived to be 60 days of age had had this same percentage of calcium in their bodies at 24 days of age. The net body weights of the 60-day-old rats at 24 days of age, as given in Table 1, were calculated as follows: The average weight of the digestive tract and contents of the 24-day-old rats was subtracted from the initial live weight of the 24-day-old control and experimental

rats; for example, rat No. 1 of the grapefruit juice study, as given in Table 1, had the initial live weight of 46.7 gm. From this figure the subtraction of 3.3 gm. (average weight of digestive tract and contents of 24-day-old rats) yielded 43.4 gm., or the estimated net weight.

To estimate the amount of calcium in rats at 24 days of age, the net body weight was multiplied by the percentage of calcium found in the animals analyzed at this age which was, namely, 0.92 per cent of 43.4 gm., or 399 mg. This last figure represents the estimated calcium in rat No. 1 at the beginning of the experiment.

milligrams of calcium consumed, namely 436 mg.; this result, when multiplied by 100, yielded 97.9 which represents the "calcium retained as per cent of calcium intake."

Five 28-day-old rats of the same strain, diet, and environmental conditions were used in the canned tomato juice study and were found to average 0.98 per cent calcium in the net body weight. The average weight of the digestive tract and contents for this group at 28 days of age was 8.4 gm. The same procedure as above was followed to determine the "calcium retained as per cent of calcium intake," and data for each litter-mate pair are shown in Table 2.

TABLE 2

Effect of commercially canned tomato juice on the calcium retention of female rats between the ages of 28 and 60 days

RAT NO.	DIET	BODY WEIGHT		GAIN IN WEIGHT	FOOD MIXTURE CONSUMED	TOMATO JUICE CONSUMED*	TOTAL CALCIUM INTAKE	NET BODY WEIGHT 60 DAYS	BODY CALCIUM AT 60 DAYS (NET WEIGHT)			
		Initial 28 days	Final 60 days						Total calcium	% of net weight	Retained	Retained as % of calcium intake
		gm.	*gm.*	*gm.*	*gm.*	*ml.*	*mg.*	*gm.*	*mg.*		*mg.*	
1	Tomato juice	47.0	127.0	80.0	301.6	135	580	112.3	936	0.83	558	96.2
2	Control	41.1	109.3	68.2	295.6	0	565	97.5	848	0.87	528	93.4
3	Tomato juice	50.7	125.4	74.7	308.1	135	592	114.2	955	0.84	540	91.2
4	Control	51.7	127.2	75.5	324.1	0	619	115.6	1022	0.88	598	96.6
5	Tomato juice	59.4	123.3	63.9	333.7	135	641	112.0	1023	0.91	523	81.6
6	Control	54.7	127.5	72.8	364.3	0	696	117.3	1064	0.91	610	87.6
7	Tomato juice	42.2	89.9	47.7	244.8	135	471	80.8	785	0.97	454	96.3
8	Control	42.5	89.9	47.4	255.6	0	488	80.6	814	1.01	480	98.3
9	Tomato juice	43.1	109.4	66.3	269.9	135	518	98.3	836	0.85	496	95.8
10	Control	45.8	82.4	36.6	231.9	0	443	73.3	761	1.04	394	88.9
	Means											
	Tomato juice	48.5	115.0	66.5	291.4	135	560	103.5± 9.6	907± 64	0.86± 0.04	514	92.2± 4.3
	Controls, paired to above	47.2	107.3	60.1	294.3	0	562	96.9± 13.4	902± 90	0.90± 0.06	522	93.0± 3.1

* Fed six days a week.

In order to determine the amount of calcium retained, the amount of calcium estimated to be in the 24-day-old rat was subtracted from the amount of calcium actually analyzed in the 60-day-old rat. For example, when the entire carcass of rat No. 1 at 60 days of age was analyzed, it was found to contain 826 mg. calcium. This amount, minus the estimated calcium of the 24-day-old rat, namely, 399 mg., yielded 427 mg. or the amount retained during the experimental period.

The food consumed by rat No. 1 was analyzed and found to contain 436 mg. of calcium for the entire experimental period. The percentage of calcium retained during the experiment was then computed by dividing the grams of calcium retained, which for rat No. 1 was 427 mg., by the

RESULTS AND DISCUSSION

The calcium content of fresh California Marsh grapefruit juice was 0.0064 per cent and for commercially canned tomato juice was 0.0026 per cent. The basal diets for the grapefruit juice study yielded 0.18 per cent calcium in which the whole dried milk furnished 83 per cent of the total calcium; in the tomato juice study the basal diet contained 0.19 per cent calcium in which the whole dried milk furnished 84 per cent of the total calcium.

The percentage of calcium retained from the total calcium consumed in the grapefruit juice study averaged 96.9 ± 4.0 and 89.9 ± 2.4 for the experimental and control animals, respectively, and by litter-mate pairs 97.9 and 94.0; 102.0 and 89.4; 88.6 and 84.8, 93.5 and 89.1, and 102.4 and 92.2.

In the tomato juice study the percentage of calcium retained from the total calcium consumed averaged 92.2 ± 4.3 and 93.0 ± 3.1 for the experimental animals and controls, respectively, and by littermate pairs was 96.2 and 93.4; 91.2 and 96.6; 81.6 and 87.6; 96.3 and 98.3; and 95.8 and 88.9.

California Marsh grapefruit juice grown in Coachella Valley[2] had an average total acidity (as citric acid) of 1.61 per cent on samples analyzed between late October and early January. A similar acidity was reported by Sinclair and Bartholomew (5), who found that the average total acid (as citric) of the same type of grapefruit also grown in southern California at Riverside ranged from 1.58 to 1.82 per cent and that of Brawley ranged from 1.71 to 1.76 per cent. Commercially canned tomato juice had a citric acid content of 0.39 per cent as reported by Mitchell (6). Lanford (7) investigated the effect of citric acid and potassium citrate in the proportions and qualities which would be supplied by 10 ml. of fresh orange juice daily and found that the citric acid and potassium citrate had no appreciable effect on the percentage of dietary calcium which was retained in the body of the growing rats.

The fresh grapefruit juice appears to contain a factor or factors which cause a slight increased calcium retention and which are not active in commercially canned tomato juice.

SUMMARY

The effect of fresh California Marsh grapefruit juice on calcium retention was studied in ten littermate 24-day-old female albino rats. They were placed on a basal diet composed of 5 parts of whole wheat flour and 1 part of dried whole milk, and containing 0.18 per cent calcium. The experimental rat of each pair was given 5 ml. of fresh grapefruit juice daily in addition to the basal diet. The grapefruit juice supplement increased calcium retention by approximately 7 per cent.

The effect of commercially canned tomato juice on calcium retention was also studied in ten litter-mate 28-day-old female albino rats. They were placed on a similar basal diet, except that it contained 0.19 per cent calcium, and the experimental rat of each pair received 5 ml. of commercially canned tomato juice daily as a supplement. The commercially canned tomato juice did not increase or decrease calcium retention.

[2] Unpublished data furnished by U. S. Department of Agriculture, Fruit and Vegetable Chemistry Laboratory, Los Angeles.

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IMPAIRED VISION FOLLOWING MEALS

Evidence is not readily available to substantiate the theory that impaired vision is caused by increase in blood sugar following a meal. According to Adler the retina rapidly utilizes sugar, and the retina "splits" much more sugar than does any other tissue. Many observers have reported alterations in the refractive power of the eye in patients with diabetes which probably vary with the sugar content of the blood. Certain observers have stated that this variation is as much as 5 diopters. It is also known that an autotoxemic amblyopia may be associated with diabetes. Some patients with visual complaints difficult to attribute to a specific cause have circulatory and toxic disturbances which probably affect their vision. There is a possibility that, after drinking tea or coffee with a meal, contraction of the retinal vessels might impair vision in certain persons with a tendency to vasospasm. Patients with impaired vision following a meal might have an allergy to certain foods.—*Queries and Minor Notes, J.A.M.A. 130: 184, 1946.*

Effect of Large-Scale Food Preparation on Vitamin Retention: Cabbage[1]

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THE purpose of this study was to determine the retention of ascorbic acid, thiamin, and riboflavin in cabbage prepared by several quantity food service procedures. The cabbage used was a Danish variety containing a mixture of strains. The temperature on six days just prior to harvesting was below freezing. The harvested heads were stored for about two weeks in a cellar with uncontrolled temperature; they were then transferred to a refrigerator maintained at 40°F. thereafter. The studies on shredding and chopping of raw cabbage and of the holding of this material were done during the latter part of November through December, 1944; cooking studies were made during the entire storage period from late in November, 1944 through February, 1945; and the studies on holding of the cooked cabbage were made during January and February, 1945.

PROCEDURE

Sampling. A wedge from each of several trimmed heads comprised the raw sample of at least 300 gm. These were chopped together and sampled for original vitamin content. In sampling the raw, shredded cabbage and the cooked, drained cabbage 300 to 400 mg. of material were taken at random throughout the lot and chopped. Duplicate 10 gm. samples were used for ascorbic acid and 50 gm. for thiamin and riboflavin. A study of the distribution of the vitamins in the outer green edible leaves, the inner and middle leaves, and the ribs was made.

Preliminary Preparation. About 7 lb. of wedges were used for each procedure of shredding and chopping. For *shredding*, two types of machines were used: Hobart type E 9-in vegetable and fruit slicer with blades adjusted to shred $\frac{1}{16}$ to $\frac{1}{8}$ in. thick, run at 315 r.p.m. with an average time for shredding of 4 min.; and a slaw cutter with wooden frame and three steel blades adjusted to shred cabbage less than $\frac{1}{16}$ in. thick in 8–10 min. Two types of machines were also used for *chopping:* a Buffalo chopper with tinned steel bowl and tool-steel knives, requiring 12–15 sec. for chopping; and a wooden bowl with double bladed steel mincing knife, requiring 4 min. to chop. The wedges had been cut with a French knife into smaller pieces before the mincing knife was used.

Each lot of at least 6 lb. of shredded and chopped cabbage was placed in an aluminum dishpan and allowed to stand at room temperature (78–82°F.) until samples were taken at the end of 30 min. and at the end of 2 hr.

TABLE 1

The distribution of vitamins in the cabbage head

PARTS OF A HEAD	CONTENT IN MG. PER 100 GM.*		
	Ascorbic acid	Thiamin	Riboflavin
Inner leaves	53 49–57	.164 .127–.206	.080 .044–.130
Middle leaves	41 39–43	.041 .036–.047	.051 .030–.085
Outer green leaves	45 42–48	.036 .030–.044	.048 .030–.083
Outer green leaves, rib removed	44 37–48	.040 .034–.046	.059 .030–.113
Outer green leaves, rib only	56 55–57	.023 .014–.035	.051 .027–.092

* Average of three replicates, two heads each.

Cooking Procedures. The wedges were cut in three ways for cooking: crosswise into about 1-in. slices; into smaller wedges, each the size of one serving; and into shreds on the Hobart machine. Ten-lb. lots of cabbage cut in slices were cooked in three types of equipment: each lot was placed in a colander, steamed for 9 min., removed from the

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TABLE 2

*The effect of three methods of cutting and of preliminary holding of cabbage on the retention of ascorbic acid, thiamin, and riboflavin**

METHOD OF CUTTING AND TIME HELD	ASCORBIC ACID		THIAMIN		RIBOFLAVIN	
	Raw cabbage	Retention	Raw cabbage	Retention	Raw cabbage	Retention
	mg./100 gm.	%	*mg./100 gm.*	%	*mg./100 gm.*	%
Shredded on Hobart machine						
Before shredding	43	—	.052	—	.032	—
Immediately after shredding	38	88 ± 1	.053	100 ± 5	.032	101 ± 4
30 min. after shredding	37	86 ± 1	.051	98 ± 4	.033	103 ± 4
120 min. after shredding	37	85 ± 2	.052	99 ± 3	.033	104 ± 7
Chopped on Buffalo chopper						
Before shredding	42	—	.043	—	.044	—
Immediately after shredding	38	91 ± 2	.046	101 ± 3	.046	102 ± 3
30 min. after shredding	37	88 ± 1	.046	102 ± 4	.043	99 ± 4
120 min. after shredding	37	88 ± 0	.047	104 ± 6	.048	105 ± 9
Chopped in wooden bowl						
Before shredding	42	—	.048	—	.036	—
Immediately after shredding	37	90 ± 2	.046	95 ± 1	.036	98 ± 3
30 min. after shredding	36	88 ± 2	.047	98 ± 9	.032	90 ± 4
120 min. after shredding	36	87 ± 3	.046	96 ± 3	.035	97 ± 5
Shredded on slaw cutter						
Before shredding	44	—	.055	—	.047	—
Immediately after shredding	37	85 ± 1	.053	97 ± 7	.045	97 ± 1
30 min. after shredding	36	81 ± 2	.056	103 ± 6	.045	97 ± 1
120 min. after shredding	37	84 ± 2	.057	104 ± 6	.044	95 ± 2

* In calculating, the assumption was made that the cabbage chopped on a board with a sharp knife for sampling retained 100% of the vitamins present. Seven lb. of wedges were used for each cutting procedure. The cut cabbage was held in an 8-qt. dishpan for 30 min. and 2 hr. at room temperature (78 to 82°F.). The percentage retentions were calculated on the total weight of the cabbage at the beginning and at the end of cutting and holding.

TABLE 3

*The effect of cooking cabbage in three types of institution equipment on the retention of ascorbic acid, thiamin, and riboflavin**

TYPE OF COOKING EQUIPMENT	QUANTITY OF WATER	TIME COOKED	ASCORBIC ACID			THIAMIN			RIBOFLAVIN		
			Raw cabbage	Retention**		Raw cabbage	Retention**		Raw cabbage	Retention**	
				Drained cooked cabbage	Cooking water		Drained cooked cabbage	Cooking water		Drained cooked cabbage	Cooking water
	qt.	*min.*	*mg./100 gm.*	%	%	*mg./100 gm.*	%	%	*mg./100 gm.*	%	%
1. Steamer	0	9	45 39–48	84 ± 1	—†	.048 .043–.053	85 ± 3	—†	.060 .040–.085	82 ± 6	—†
2. Steam-jacketed kettle	10	7	45 42–50	57 ± 2‡	34 32–38	.043 .036–.052	63 ± 5	41 35–45	.056 .040–.080	70 ± 9	38 26–46
3. Stock pot on range	10	12–14½§	46 41–49	50 ± 2	41 36–47	.050 .047–.054	50 ± 2	47 43–57	.056 .036–.076	59 ± 3	45 41–51

* Each cooking lot consisted of 10 lb. of cabbage. It was cut in slices preparatory to being cooked. Each study was repeated 5 times. All were considered acceptable products.

** The percentage retentions were calculated on the total weight of the cabbage and of the cooking water at the beginning and at the end of cooking. The statistical treatment was made only on the figures of most importance; that is, on the percentage retentions of the vitamins in the vegetable when ready to be served. Significant differences were noted between ascorbic acid: 1 and 2; 1 and 3; thiamin: 1 and 2; 1 and 3; riboflavin: 1 and 3.

† Cooking water was not analyzed because perforated pans were used in steaming.

‡ Average of 4 replicates.

§ The actual boiling time was 6 min.; 6–8½ min. were required to return the water to the boil.

TABLE 4

*The effect of increasing the quantity of cabbage and of cooking water on the retention of ascorbic acid, thiamin, and riboflavin during cooking**

QUANTITY OF CABBAGE	SIZE OF KETTLE	ASCORBIC ACID		THIAMIN		RIBOFLAVIN	
		Content of raw cabbage	Retention in drained cooked cabbage**	Content of raw cabbage	Retention in drained cooked cabbage**	Content of raw cabbage	Retention in drained cooked cabbage**
lb.		*mg./100 gm.*	%	*mg./100 gm.*	%	*mg./100 gm.*	%
10	15-gal.	45 42–50	56 ± 5	.043 .036–.052	63 ± 5	.056 .040–.080	70 ± 9
50	25-gal.	51 46–59	53 ± 3	.045 .040–.049	69 ± 6	.034 .030–.039	84 ± 9

* Cabbage was cut in slices and cooked 7 min. in the steam-jacketed kettle in the same proportion of water (10 qt. and 50 qt.). Both products were considered acceptable. Each study was repeated 4 times.

** The percentage retentions were calculated on the total weight of the cabbage at the beginning and at the end of cooking. The statistical treatment was made on the percentage retention of the vitamins in the vegetable when ready to be served. No significant differences were noted.

TABLE 5

*The effect of decreasing the proportion of water to cabbage on the retention of ascorbic acid, thiamin, and riboflavin during cooking**

QUANTITY OF WATER	ASCORBIC ACID			THIAMIN			RIBOFLAVIN		
	Content of raw cabbage	Retention**		Content of raw cabbage	Retention**		Content of raw cabbage	Retention**	
		Drained cooked cabbage	Cooking water		Drained cooked cabbage	Cooking water		Drained cooked cabbage	Cooking water
qt.	*mg./100 gm.*	%	%	*mg./100 gm.*	%	%	*mg./100 mg.*	%	%
10	46 41–49	50 ± 2	41 36–47	.050 .047–.054	50 ± 2	47 43–57	.056 .036–.076	59 ± 3	45 41–51
5	46 43–49	58 ± 2	30 29–32	.055 .042–.064	65 ± 3	34 30–38	.038 .035–.040	79 ± 3	41 32–48

* Ten lb. of cabbage were cooked in a stock-pot on a range for 12–14½ min. including the 6–8½ min. required to return the water to the boil. Cabbage was cut in slices. Both were considered acceptable products. Each study was repeated 5 times.

** The percentage retentions were calculated on the total weight of the cabbage and of the cooking water at the beginning and at the end of cooking. The statistical treatment was made only on the figures of most importance; that is, on the percentage retention of the vitamin in the vegetable when ready to be served. Significant differences in retentions were noted for each vitamin.

TABLE 6

*The effect of the addition of salt to the cooking water on the retention of ascorbic acid, thiamin, and riboflavin in cabbage**

QUANTITY OF SALT	ASCORBIC ACID**			THIAMIN†			RIBOFLAVIN‡		
	Content of raw cabbage	Retention§		Content of raw cabbage	Retention§		Content of raw cabbage	Retention§	
		Drained, cooked cabbage	Cooking water		Drained, cooked cabbage	Cooking water		Drained, cooked cabbage	Cooking water
gm.	*mg./100 gm.*	%	%	*mg./100 gm.*	%	%	*mg./100 gm.*	%	%
200	45 40–51	69 ± 3	20 8–27	.047 .043–.053	55 ± 5	40 38–41	.046 .046–.046	78 ± 2	— —
0	44 38–50	59 ± 3	30 12–39	.041 .036–.045	59 ± 4	41 41–41	.042 .042–.043	77 ± 2	41 41–41

* The cabbage was sliced and boiled in 10-lb. lots in 10 qt. of water in a 15-gal. steam-jacketed kettle.

** Each study was repeated 5 times.

† Each study was repeated 4 times.

‡ Each study was repeated twice.

§ The percentage retentions were calculated on the total weight of the cabbage and of the cooking water at the beginning and at the end of cooking. The statistical treatment was made only on the figures of most importance; that is, on the percentage retention in the vegetable when ready to be served. Significant differences were noted only for ascorbic acid.

steamer, and allowed to stand for draining; each lot was boiled in 10 qt. of water in a steam-jacketed kettle for 7 min.; each lot was cooked in 10 qt. of water in the stock pot on the range for 6 min. after the boiling point was reached (6–8½ min.) Fifty-lb. lots were boiled in 50 qt. of water in a steam-jacketed kettle. Ten-lb. lots were cooked in the stock pot in 5 qt. of water. Cabbage wedges, slices, and shreds were boiled in the steam-jacketed kettle and steamed. Lots were also boiled with and without salt.

The steamer and range were preheated when the cabbage was steamed; in boiling, the water was at a full rolling boil when the cabbage was added. It was cooked uncovered in the steam-jacketed kettles; on the range the stock pot was covered until the water returned to the boil. The cabbage was cooked until just done, according to the palatability standards in this section of the country. Cooking time was counted from the time the cabbage was put in to cook. No ingredients were added except in those studies on the effect of salt on vitamin retention. A statistical analysis (10) was made of the differences in percentage retentions.

Holding Cooked Cabbage for Serving. Three 1200-gm. lots of drained, boiled cabbage were placed in the steam counter, the "thermotainer," and the warmer, and were held uncovered for 15, 30, and 120 min. Approximately 9-lb. lots of drained, cooked cabbage were placed in aluminum dishpans and held uncovered for 24 hr. in a refrigerator (about 38°F.) Upon removal from the refrigerator, each lot was drained in a colander for 5 min., weighed, and sampled. Each of these was divided into two lots. One lot of 3 lb. was heated in the steamer for 3 min. and the other 5-lb. lot was boiled in 5 qt. of water in a steam-jacketed kettle for 1 min.

TABLE 7

*The effect of three methods of preliminary cutting of cabbage on the retention of ascorbic acid, thiamin, and riboflavin during two methods of cooking**

COOKING METHOD		CUTTING METHOD	QUANTITY		COOKING TIME	ASCORBIC ACID			THIAMIN			RIBOFLAVIN			PALATABILITY SCORE†
			Cabbage	Water		Content of raw cabbage	Retention**		Content of raw cabbage	Retention**		Content of raw cabbage	Retention**		
							Drained, cooked cabbage	Cooking water		Drained cooked cabbage	Cooking water		Drained cooked cabbage	Cooking water	
			lb.	*qt.*	*min.*	*mg./100 gm.*	%	%	*mg./100 gm.*	%	%	*mg./100 gm.*	%	%	
Steamer	1	Wedges	5	0	10	45 35–55	85 ± 4	—§ —	.046 .038–.064	92 ± 3	—§ —	.041 .033–.046	104 ± 3	—§ —	87
	2	Slices	10	0	9	45 39–48	84 ± 3	—§ —	.048 .043–.053	85 ± 3	—§ —	.060 .040–.085	82 ± 6	—§ —	65
	3	Shreds	10	0	4	43 32–51	72 ± 4	—§ —	.045 .034–.052	77 ± 9	—§ —	.042 .035–.052	91 ± 7	—§ —	93
Steam-jacketed kettle	4	Wedges	5	32	7–8	46 34–53	74 ± 6	—‖ —	.052 .042–.052	85 ± 8	—‖	.042 .027–.050	90 ± 5	—‖	80
	5	Slices	10	10	7	45†† 42–50	57 ± 2	34 32–38	.043 .036–.052	63 ± 5	41 35–45	.056 .040–.080	70 ± 9	38 26–46	97
	6	Shreds	10	6	4	42 36–45	57 ± 4	30 14–37	.047 .030–.059	64 ± 6	31 24–35	.045 .041–.049	66 ± 6	38 20–53	93

* Each study was repeated 5 times.

** The percentage retentions were calculated on the total weight of the cabbage and of the cooking water at the beginning and at the end of cooking. The statistical treatment was made only on the figures of most importance; that is, on the percentage retention of vitamins in the vegetables when ready to be served. Significant differences were noted between ascorbic acid: 1 and 3, 1 and 5, 1 and 6, 2 and 3, 2 and 5, 2 and 6, 3 and 5, 3 and 6, 4 and 5, and 4 and 6; thiamin: 1 and 5, 1 and 6, 2 and 5, 2 and 6; riboflavin: 1 and 2, 1 and 5, 1 and 6, 3 and 6, 4 and 6.

† All were considered acceptable products. The maximum score possible was 100.

†† Average of 4 replicates.

§ Cooking water was not analyzed because perforated pans were used in steaming.

‖ Cooking water was not analyzed.

ANALYSIS

Ascorbic acid determinations were made the day the samples were taken, using the method of Bessey and King (1) as modified by Mack and Tressler (2). The method of Roe and Kuether (3) as modified for plant tissues by Roe and Oesterling (4) did not

TABLE 8

*The effect of methods of holding cooked cabbage warm for serving on the retention of ascorbic acid, thiamin, and riboflavin**

METHOD AND TIME OF HOLDING	ASCORBIC ACID		THIAMIN		RIBOFLAVIN	
	Content of raw cabbage	Retention†	Content of raw cabbage	Retention†	Content of raw cabbage	Retention†
	mg./100 gm.	%	*mg./100 gm.*	%	*mg./100 gm.*	%
	42		.049		.047	
	41–44		.024–.053		.036–.058	
Steam counter						
After cooking**		56 ± 2		63 ± 4		62 ± 4
Held 15 min		50 ± 3		—		—
Held 30 min		43 ± 3		—		—
Held 120 min		25 ± 2		59 ± 5		58 ± 7
	42		.053		.038	
	35–50		.048–.058		.031–.044	
"Thermotainer"						
After cooking**		61 ± 1		68 ± 5		74 ± 4
Held 15 min.**		50 ± 2		—		—
Held 30 min		45 ± 4		—		—
Held 120 min		21 ± 3		62 ± 3		69 ± 4
	46		.049		.056	
	39–55		.046–.052		.052–.060	
Warmer						
After cooking		61 ± 3		74 ± 2		77 ± 4
Held 15 min		51 ± 2		—		—
Held 30 min		49 ± 2		—		—
Held 120 min		29 ± 3		72 ± 2		65 ± 2

* Number of replicates for ascorbic acid studies, 5; thiamin and riboflavin studies: steam counter, 5; "Thermotainer" and warmer, 3.

** 10 lb. lots were boiled in the 15-gal. steam-jacketed kettle in 10 qt. water for 7 min.

† The percentage retentions were based on the vitamin content of the raw cabbage. Significant differences in retentions were noted for ascorbic acid in the following: 1a and 1c; 1a and 1d; 1b and 1d; 1c and 1d; 2a and 2b; 2a and 2c; 2a and 2d; 2b and 2d; 2c and 2d; 3a and 3b; 3a and 3c; 3a and 3d; 3b and 3d; 3c and 3d. No significant differences were noted for thiamin and riboflavin.

TABLE 9

*The effect of holding cooked cabbage in the refrigerator for 24 hours and of reheating the cabbage in the steam-jacketed kettle and in the steamer on the retention of ascorbic acid, thiamin, and riboflavin**

	HOLDING METHOD	ASCORBIC ACID		THIAMIN		RIBOFLAVIN	
		Content	Retention§	Content	Retention§	Content	Retention§
		mg./100 gm.	%	*mg./100 gm.*	%	*mg./100 gm.*	%
	Raw	44		.041		.042	
		38–50		.036–.045		.042–.043	
1.	After cooking**		59 ± 3		59 ± 4		77 ± 2
2.	After holding in refrigerator 24 hr.		26 ± 2		46 ± 2		65 ± 0
3.	After reheating in steamer†		20 ± 4		65 ± 7		79 ± 11
4.	After reheating in steam-jacketed kettle‡		16 ± 2		52 ± 6		75 ± 24

* Number of replicates: ascorbic acid, 5; thiamin, 4; riboflavin, 2.

** 10-lb. lots were boiled in the steam-jacketed kettle in 10 qt. water for 7 min.

† 3-lb. lots of refrigerated, drained, cooked cabbage were steamed for 3 min.

‡ 5-lb. lots of refrigerated, drained, cooked cabbage were boiled in fresh water for 1 min.

§ The percentage retentions were based on the vitamin content of the raw cabbage. Significant differences in retentions were noted only for ascorbic acid: 1 and 2; 1 and 3; 1 and 4; 2 and 4.

give consistent results with this cabbage. Thiamin and riboflavin determinations were made within 24 hr. in a room with controlled illumination. The thiochrome method of Conner and Straub (5) as modified for vegetables by Moyer and Tressler (6) was used to determine thiamin content. Riboflavin was determined by the method of Mackinney and Sugihara (7).

The weight of the raw material was that of trimmed cabbage with the core removed. The percentage retentions were calculated on the basis of the vitamin content of the total raw and of the total cooked cabbage in each lot. The total weight of the vegetable was, therefore, obtained at each stage of sampling. Each lot of cooked cabbage was weighed after draining and just before sampling.

SUMMARY AND DISCUSSION OF RESULTS

The average vitamin content of the cabbage did not change appreciably during the storage season (November through February). Some loss of ascorbic acid did occur in cutting raw cabbage by the methods described, but no appreciable loss of ascorbic acid, thiamin, or riboflavin occurred in holding the raw, cut cabbage at room temperature for 2 hr. Steaming resulted in a higher retention of each of the three vitamins than did boiling. Increasing the quantity of cabbage boiled at one time and increasing the amount of water proportionately resulted in little difference in vitamin retention, while reducing the amount of water used in boiling cabbage in a pot on the range from 10 to 5 qt. resulted in some increase in vitamin retention. A slightly higher retention of ascorbic acid occurred if cabbage was boiled in salted water. In cooking wedges, slices, and shreds, steaming resulted in the highest retention of each of the vitamins. In steaming, the wedges and slices retained more ascorbic acid than did the shreds. In boiling, the wedges had the highest retention of each of the three vitamins. An appreciable loss of ascorbic acid was observed when drained cooked cabbage was held for serving in heated service units. When drained, cooked cabbage was held in a refrigerator for 24 hr. and then reheated, a definite loss of ascorbic acid occurred but no statistically significant loss of riboflavin or thiamin was observed (Tables 1–9).

Each cooking procedure resulted in an acceptable product, although slight differences in palatability were noted by the judges. Cabbage boiled in the steam-jacketed kettle was very acceptable, that boiled on the range was less so, and that which was steamed was not as acceptable as that cooked by either of the other methods. However, steamed wedges and steamed shredded cabbage were considered very acceptable products.

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'CULTURIZED' POTATO BREAD

A Detroit bakery has developed a 'culturized' potato bread that is claimed to resist staleness for as long as three weeks. Made of a ferment having the properties of yeast, and potato flour, the culture is used in a 3 or 4 per cent mixture, producing bread that is finer in texture than ordinary bread and resists mold. Non-competitive bakeries may now purchase the dry ingredients, and the bakery controlling the process also supplies promotional material and wrappers.—*Food Field Reporter. March 16, 1946.*

Food Preparation and Service Equipment for Hospitals[1]

OWEN WEBBER

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DURING the war years, little or no equipment was made available for hospital operation. As a result much of the equipment now on hand in many institutions is old, and many installations will have to be replaced within a reasonably short time. This state of affairs is nation wide. Now, therefore, is an admirable time to introduce changes in design for widespread adoption and approval.

It is also true that following each period of national emergency new inventions are brought to light, which in the normal course of events would not have been revealed to us for many years. At this moment, therefore, parallel with the need for new equipment we are being introduced to new methods of food handling and preparation which have resulted from our national operations during the emergency.

These new developments may be grouped as follows: first, the large scale introduction of precooked frozen foods; second, the change in specific materials in equipment fabrication; third, the introduction of disposable tableware, plasticware, and light weight china; and fourth, the innovations viewed as equipment of convenience.

Many of these developments will be far-reaching and will require sagacious handling by all of us in order to make the transition from the conventional into the new without undue disturbance to our entire national system of food engagement.

Foremost among the factors affecting this change will be the availability of frozen cooked foods, various improvements in our system of wholesale distribution and changes in the type of packaging. As a result there should be a marked improvement in the condition in which foodstuffs are received at the point of consumption. The packaging of such products as meats, meat joints, sea food, and fresh vegetables, is a major problem requiring solution in large scale use of frozen and frozen cooked foods. Serious study of all the possibilities of these new developments is essential.

The handling of food is too often considered a very simple matter. Consequently many with little experience engage in the business of public catering. To these people and others, there appears to be no technical difficulty involved in carrying on beyond the cooking stage and producing frozen cooked food. We shall, therefore, shortly witness a number of concerns going into the business of producing frozen cooked food, the quality of which will be in many instances unsatisfactory and will as a consequence give the frozen food industry a setback in the public estimation.

At present, too little information is available concerning the effects of freezing and storage over a long period on the cooked food, both from the standpoint of bacterial contamination and food quality depreciation. Bacterial contamination can exist in the original food materials, and also can be increased during the cooling period just prior to the actual freezing. It should be remembered that precooked frozen food may be more susceptible to spoilage than other types of food, since it is already partially broken down through the cooking process. The prime requisites are speed and asepsis in handling food products in order to forestall depreciation and contamination during the periods of cooling and packaging, since it is in these stages of production that there exists the optimum temperatures for more active bacterial growth.

Although difficulties must be faced, the *advantages* of utilizing as many items of precooked frozen food as our dietetic system would logically permit cannot be overlooked. A partial number of the advantages may be listed as follows:

1. A superior standardized product would be available if the cooking and deep freezing were done under expert supervision. Furthermore, unusual recipes could be stand-

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ardized by responsible dietitians in collaboration with world renowned chefs.

2. Reliable scientific procedures would preserve the maximum in nutritional value thus avoiding much of the waste in cooking which results from the indifference of some culinary operators.

3. The centralized volume would also provide great economies. Food service divisions in hospitals could operate with considerably less capital investment in equipment, with an appreciable reduction in staff, and with a reduction in kitchen and pantry space. Also, savings would result from knowledge of exact costs, as compared to the varying and uncertain cost of fresh foods.

4. *All* raw foodstuffs could be used, thereby lessening the losses from spoilage under present conditions of marketing, storage, and distribution.

5. Food items could be made up and stored for appreciable lengths of time.

The use of frozen cooked food will result in the introduction of a new type of equipment in the ward serving kitchens which will permit a more direct service of the finished food item to the patient. The finished item could be brought directly to the ward serving kitchens for placement in the high frequency heating equipment, by-passing the main kitchen entirely, and reaching the patient in better form than at present. This would necessitate great changes in the main kitchen with the serving kitchen probably slightly extended and more detailed in its operation. The packaging of the food items in thicknesses not in excess of 1 in. to 1½ in. would permit the utilization of a high frequency electric oven which would render the food items in condition for eating in a matter of a little over a minute. This period of time would vary according to the thickness of the material and the time required for a 5-in.-thick food item would be considerably more than five times as much as would be required for a 1-in.-thick food item.

For the next few years the requirements of the public feeding group as a whole will be in excess of production as regards the procurement of equipment, raw food, and finished food supplies. Therefore, those who are most active in the field of public feeding will have the greater bulk of their requirements met.

The packaging of frozen cooked food will need to vary according to its sphere of use. The packaging for dietetic items would differ greatly from the packaging of items suitable for passenger ship, air-plane, domestic, hotel and restaurant use, or for student feeding. For example, in the case of certain items suitable for school lunches there would be a difference in the weight, quality, and the type of recipe used. It stands to reason that packaging for school lunches is unlikely unless the volume is pooled and a responsible manufacturer approached to provide in his schedule some capacity to turn out food items suitable for school lunches. That single problem presents a difficulty at the moment. Under our present set-up of acquiring raw food supplies from wholesalers, any one of our public feeding groups can buy as they wish and make up meals in any form they wish. The qualified manufacturer's ability to undertake these specially processed and packaged items in the volume which can be anticipated will determine who will enjoy the fruits of their efforts first. If the bulk of the approved requirements can be obtained in the cooked, frozen form, then most of the present methods of storage, handling, cleaning, preparing, and cooking will become outmoded.

It is essential in planning and budgeting for equipment that we study ways and means of permitting the acquisition of equipment which will accommodate the acceptance of these new food items as they are introduced. Ultimately this will result in a substantial reduction in floor areas. The dry stores department would change and be smaller. The main storage refrigerator would be remarkably changed in capacity and design and a larger portion of the capacity turned over to a type of room in which the center aisles would be non-refrigerated, but would give access to a series of low temperature lockers on either side. Each of these lockers could be supplied with lucite or glass panels and a visual perpetual inventory made available for all items in each locker. These items would probably be packaged in 5-lb. and/or 10-lb. cartons and would contain a series of flat slabs of food as the frozen cooked food must be packed in cartons eliminating as much air as possible and avoiding air locks.

Testing has been done of pastries and pies which are available either in the frozen, fully prepared but uncooked form, or the frozen cooked form. It is considered that reputable firms will be in business to provide certain specialties. Canapes, relishes, and hors d'oeuvres are now frozen and delicious. Soups of all types could be available in frozen form as well as a great number of au gratin dishes in addition to vegetables, especially potatoes in various forms. One large food corporation reports satisfactory findings on about 75 frozen cooked food items. As a result of the new food processing expectancy we can anticipate a more balanced diet throughout the year, for the items which are now seasonal, would be available throughout the year.

The second new development previously mentioned, "changes in the materials used for equipment," is one that can logically be expected. Stainless steel will remain in its present favored position for all locations coming in contact with the actual food. However, sub-structures of fixtures and equipment can reasonably include in the future aluminum alloys and plastics. The trend is also toward the introduction of insulating materials to prevent unnecessary radiation of heat. Air-conditioned buildings will be the customary thing in the future. Inefficiently ventilated kitchens will not be tolerated from the standpoint of the unnecessary burden on the ventilation and air-conditioning system.

With reference to the third group of expected changes, the widespread adoption of which might be termed "disposable tableware," one can anticipate that these products will replace many of the china shapes we now use. If, for a substantial proportion of our public requirements, we would eliminate the use of crockery, especially in the hospital, we would eliminate a chance of infection, and we also would eliminate the need of handling, scraping, cleaning, sterilizing, and replacement within the service departments.

Progress has been made in providing a plastic coated, decorated tableware, which will eventually be acceptable in quality and appearance. In this respect no comparison can be made to the picnic paper plate and/or shapes in common usage today. Parallel with this disposable ware one can with interest look into the extremely light weight china which has been developed for airplane use. It leads one to assume certain possibilities for use in the hospital. We also know that work is being done in producing plasticware. All of these will contribute relief reasonably soon.

The fourth factor, "a group of modern innovations contributing to convenience and efficiency in kitchen and food service operations," would be in addition to the special equipment required by the introduction of precooked frozen foods.

An electric heat diffuser is available for steam table operation which eliminates the water, steam coil, and waste outlet common to steam tables at present. This unit operates on a fractional horsepower motor with a thermostat. The air within the pan is recirculated, and that part of the pan under the steam table top is insulated. These units are successful for the operation of steam tables not in excess of 5 ft. in length. With this innovation it would be reasonable to break up the hot food service unit into sections, thus affording flexibility in operation through the use of one or all of the sections according to the season and the menu involved.

Contributions to better coffee making are at hand. One such coffee-maker retains the original shape of the leacher, but eliminates the paper filters. The bottom takes the form of a dual disc of stainless steel perforated with many small holes. The discs are moved around to the point where the holes do not appear over each other. In other words, the apertures of one are covered by the solid areas of the opposite disc. In this position the discs are welded together and constitute the bottom of the leacher. The ground coffee is placed in the leacher and the water poured over in the usual manner, passing between the stainless discs by capillary action and appearing in the urn liner in a clear amber fluid. Naturally such a leacher is a simple thing to keep clean and coffee can be remade in a shorter length of time. New designs in the coffee urns will be available whereby the urns will be appreciably lower in height, insulated, and more economical in the occupancy of space.

The dishwashing department has received a contribution in the form of a prewasher (Fig. 1) for large scale dishwashing, while smaller dishwashing capacities can be accommodated by utilizing portable shower heads and hose runs at the scraping station. The hose can be operated on a spring controlled reel located under the table leading up through a vertically placed short pipe stub secured to the table. When not in use the hose runs back through the pipe collar and the rinse head is placed conveniently above the surrounding soiled dishes ready for instant use. To avoid waste of water, a foot or knee valve should be supplied similar to a surgeon's wash-up apparatus. Under a slightly more elaborate set-up, one could introduce a sink immediately in front of the soiled dish entry with small tracks or angle guides set at

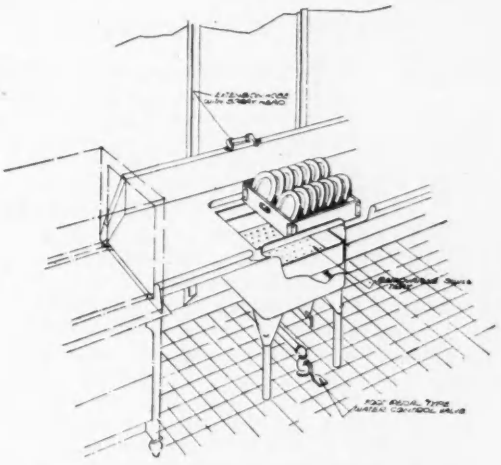

FIG. 1. *Prewasher for large scale dishwashing*

the same dimensions of spread as those in the dishwasher. The dishes would simply be placed on edge in the basket and, following the usual table traffic route to the dishwasher, make one stop—that is, over the flushing sink. With the loaded dish basket in position over the prewashing sink, the operator would pull out from its conveniently parked position, the hose and spray head. The shower of the water would swill most of the food scraps and film off the dishes. Since the dishes would be inclined in position, the refuse would fall through the open-rodded bottom of the basket into the flushing sink where the food scraps would be caught in a wire mesh removable tray, and the grease and liquid would run on through the sink waste. With a foot pedal valve control, for 100°F. water, and the average usage of 1 or 2 qt. per basket, the extra time involved and the water usage would be nicely controlled. It would

seem logical to assume that for many installations a single-tank dishwasher would be in order rather than a two- or three-tank model since the introduction of this preflushing stage would leave the washing tank in the dishwasher relatively clean.

Induction electrical heating cooking appliances as distinct from apparatus functioning with radiated heat from resistance coils offer possibilities for a wide range of employment even though some limits should be placed on the scope of application of this principle of operation. The cooking stages can be time-controlled and temperature-maintained within a close range by means of thermostats. The application of this principle would involve a special range top and equipment units which could be introduced in the cooking apparatus battery supplementing the conventional ranges. This type of apparatus would be useful for the discriminating operator, who bases his reputation on small quantity cooking by introducing freshly cooked items at frequent intervals during the actual meal serving hour. Such a system requires a comprehensive scheduling, a coordinated organization, and fine operating technique not generally enjoyed.

Certain activities in the industry also lead me to believe that equipment employing induction heaters and including commercial pressure cookers will be available in the not far distant future.

Inflation Shows up in Frozen Foods

Inflation and false prices due to OPA price structure, according to the U. S. Department of Agriculture officials, can be held responsible for the glut of frozen foods now in warehouses.

For example, because of the price ceiling which prevailed before July 1, frozen peaches in 30-lb. packages are offered at between 3 and 4 cents above the actual market value of the product. This is not a true price, but it nevertheless acts as a floor, below which frozen peaches will not be offered. Industrial and institutional users are consequently not buying peaches because the price is out of line and they do not have enough sugar to make preserves. As a result, the cold storage report of May 15 states: "Freezers are well filled with two or three commodities that are not moving at normal rates, particularly frozen fruits and vegetables."

In analyzing the holdings, it was found that slow-moving items are fruits packed in 30-lb. packages for industrial and institutional use. Another factor in the large stores of frozen foods is the huge pack of last year. The rate of withdrawals from warehouses is lower than normal, although on a pound basis withdrawals were above the normal outgo.

At the end of April, there were more than 5,000 carloads of frozen fruits in storage. This is more than the peak of the five-year average, and the situation has caused some alarm, since a year's normal pack remained on hand just when a new crop would begin to ripen and move into freezer warehouses. A year's storage adds about 3 cents per pound to the cost.—*Food Industries 18: (July) 115, 1946.*

VITAMIN DEFICIENCIES: STIGMAS, SYMPTOMS AND THERAPY

An up to date outline of the changes in the body resulting from vitamin deficiencies has been prepared by the Council on Foods and Nutrition of the American Medical Association. The stigmas and symptoms associated with deficiencies of vitamins A, thiamine, riboflavin, niacin, ascorbic acid, vitamins D, and K are listed together with statements concerning the treatment of each deficiency. It is emphasized in the introductory comment, that lack of complete information renders certain statements tentative and subject to probable early revision. Furthermore, the abnormal findings should be considered as suggestive only and should be corroborated by the finding of other changes as well as a history of dietary inadequacy.—Council on Foods and Nutrition, *J. A. M. A. 131, 666, 1946.*

A Practical Approach to Labor Relations[1]

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LABOR relations are no more and no less than the working out of a way of getting along together between you and someone who works for you, or between you and someone for whom you work. Certainly the problems become bigger than that in many organizations, but just as certainly the things which big unions and big employers argue about are the things that start down at the supervisor and worker level.

The most serious and frequent cause of labor disputes in times of normal economic conditions is an individual problem which was not settled at the lower level, but which grew and festered until it became an issue that tied up a production line. If we can just forget generalities and get a firm grip on the elementary facts that labor is a person who works for you, and that management is a supervisor who oversees that person's daily work, maybe it will be possible to consider a few practical suggestions to help these two cooperate. They *must* get along together. It takes the two of them to do the job, and there is no possible chance that they can go their separate ways and do it singly and alone.

There are just a few fundamental things which our worker needs to keep him reasonably happy and on the job:

1. He wants to know exactly what you expect him to do.
2. He wants to know why you expect it.
3. He wants to be paid a fair wage for doing it.
4. He wants to be treated as an individual, not as an unidentified unit of an impersonal mass.
5. He wants to be able to trust your good faith, fairness, and honesty.
6. He wants to have some reasonable hope of advancement.
7. He wants working conditions and surroundings as safe and pleasant as they can possibly be made within the limitations of his job.
8. He wants to know exactly what his rights and privileges are, as well as his responsibilities. Also he wants those rights and privileges to be granted to him in the same measure as they are granted to others doing similar work.

Your needs as employers aren't even that involved. You want from your employee:

1. A fair day's work.
2. A willingness and ability to cooperate with his fellow workers so that the production team can perform efficiently.
3. A loyalty to you and your organization which provides the "extra push" required in times of special need or emergency.
4. Obedience to the orderly rules and regulations set up to insure proper management controls.

There may be other needs and desires on both sides, but the above points cover the fundamentals.

If you are now dealing, or may in the future deal, with a union acting in behalf of your employees, you are still dealing in matters such as those just listed, even though you may be dealing in the multiple rather than individual relationships thereof. In dealing with the union representative, it is, however, of the utmost importance that you understand his point of view and what he is trying to accomplish. First, and always, everything he does has one absolutely fundamental objective—to promote the value and usefulness of the union in the eyes of its members or prospective members. The business agent, organizer, or steward has a constant job of selling, and he has to provide the kind of vigorous and often aggressive representation which will win and keep the support of his dues-paying constituents. Anytime he ceases to get some sort of measurable and tangible results, he is facing losses of membership or support, and he has no intention of doing that if he can avoid it.

So know your labor leaders and "get the feel" of their thinking when they come to you with a problem, a proposal, or a demand. You may frequently

[1] Presented before the Dietetic Section of the Tri-State Hospital Assembly, Chicago, May 1, 1946.

disagree, but you will accomplish more if, while disagreeing, you appreciate the reasons for their way of doing business. It is well to recall, too, the concise comment recently made by one well known labor leader; "Our business is crowd psychology, and when it comes to that we can lick you to a frazzle." Above everything else if you will be fair with him; bargain, but not trick; defend your own convictions and policies, but not evade an issue; you can continue to differ on many points and still retain his respect and essential cooperation. Keep your word good, your actions consistent, and your discussions on a basis of friendly frankness, and you can get along with him.

To return to the individual worker again, it is necessary to remember that he is still the source from which problems start. Look again at those things he wants and consider how adjustments can be made without jeopardizing the things we, as employers, must have.

1. *He wants to know exactly what you expect him to do.* Some philosopher has said that repetition is reputation. It is also an essential of instruction. But verbal repetition is not enough, unless it is accompanied with demonstration. Tell him, show him, then tell and show together. Do not assume knowledge on the part of the employee on the basis of your own familiarity with the subject. In teaching a worker, whether it be in dishwashing or in some complicated phase of food preparation it is easy to take for granted his knowledge of certain basic fundamentals which are obvious to the instructor. By failing to check definitely on that knowledge, he may go in a wrong direction. Tell, show, tell and show together, and be sure he is understanding what you are thinking.

2. *He wants to know why.* He should be encouraged to ask why. Many of the finest improvements in wartime industrial practice resulted from training courses in job methods in which the employee was encouraged to ask the why of the way things were being done. You may not always be able to grant a request, but you can say why. Any worker with an idea should be given the reason why, if the idea is not accepted and put into effect; and if you are making changes, again the reason why is extremely important. People are naturally suspicious of change which they do not understand, and nothing can destroy the constructive value of a change in procedure more than suspicion by those concerned that it may not be to their best interests. When you have to turn down a suggestion or request, or when you start something new, the why statement is your first obligation.

3. *He wants to be paid a fair wage.* This need seems to get the most noisy attention and it is often highly important. Sooner or later in almost any authoritative treatise on labor relations this statement is bound to occur: "People are more concerned in the comparison between their compensation and that of others, than in that compensation as such." Second only to establishing a fair overall level of compensation, you need to be sure that your rates for different positions and classifications are properly and logically related.

This is no place for a detailed discussion of job evaluation and the construction of a wage and salary schedule. Nonetheless, it is proper to point out that there are really only four factors, or requirements, for which we provide pay in any position: first, the preparation, education, or experience required for a person to be eligible for employment; second, the personal qualifications required to carry out his particular duties; third, any unsafe or unpleasant conditions under which his work is to be performed; and fourth, the responsibilities he may be expected to assume.

In dealing with wage problems, it is vitally important that a few fundamental principles be observed: some supportable method of relating your rates of pay for different positions is needed; a new employee should not be hired at a higher rate of pay than you are paying an old one for similar work; pay rates in general should be kept fairly even with those with whom the employee competes; and good work should be recognized by reasonable raises.

4. *He wants to be treated as an individual.* With proper incentive, a very ordinary person can do very extraordinary tasks; with poor incentive he can fail to accomplish anything. The best incentive is a bit of personal recognition. You can pay an employee no greater compliment than to ask his advice about something. If he comes in to see you with a problem you may see very quickly what he is trying to say, cut him off short, and answer him. It does not matter that you may have answered fully what he has been trying to say—you have left him with a feeling of frustration and dissatisfaction if he has not had a chance to unburden himself completely in his own way. He is a very wise employer who can listen patiently until this employee has said what is on his mind, for he finds that often simply the telling is enough to ease the problem. Nothing can replace in employer-employee relations a sense of friendly, personal interest. If you can have that alone out of all the points mentioned, you will go a long way toward good labor relations.

5. *He wants to be able to trust your good faith, fairness, and honesty.* President Alvin E. Dodd, American Management Association, recently wrote three short paragraphs which point up the problem in a rather special way:

> American employers in 1946—the first 12-month period after World War II—are learning that the biggest problems of management lie not in discovering the best ways of doing things, but in ascertaining the best ways of persuading em-

ployees to accept the findings and decisions of management as fair and just.

In the most capitalistic and the least authoritarian of nations, the workers have the loudest voice in deciding their own treatment and destinies. Their civil liberties exist not only in the area of politics, but in the industrial zone as well.

American employers in 1946 cannot afford to look upon these conditions emotionally. They must consider them as cold facts—a set of problems to be solved—a condition not likely ever to change. Justice Brandeis said, "Efficiency depends upon consent," and without using the same words, thousands of American companies have incorporated that wisdom into their labor relations policies. They *know* this is a problem to be licked, and they have set about solving it intelligently in their own way.

Differences of opinion are bound to occur. You have every right to defend what you think is right as long as you are fair and do not discriminate in so doing. However, never believe only one side of any argument or dispute until you have personally checked the facts on the other side. Get all the facts, consider carefully what the actions which you might take are, then weigh these possible actions, thinking of what you are really trying to accomplish—punishment, reform, or a change of attitude. Only when you have done all that, is it time to decide what you are going to do about it. There is one type of reprimand which can humiliate and anger an employee and make a permanent enemy out of him; there is another type which can make him a better and more useful worker, and increase his sense of loyalty, and there is still that old rule of child training—never punish while in anger. That is sound in our business also.

Mr. Dodd also pointed out, "Unless measures are taken to humanize our employee relations, the employee is likely to regard the whole program as an encroachment on his personal freedom, and to be combated by whatever means lie at hand. No amount of preaching about 'free enterprise' will convince him to the contrary—only day-by-day human treatment which makes him feel that he is important, and that management recognizes his importance."

6. *He wants a reasonable hope of advancement.* We have become accustomed to referring to that idea in the terms of Horatio Alger, and minimizing its importance in these days of mass production and employment. In a recent opinion poll, we asked our own employees, "How do you feel about your opportunities for advancement?" Far too many checked, "No opportunity," or "Poor opportunity." We are going to do two very definite things about that: first, see whether we can actually improve and broaden the advancement opportunities; and second do a very active selling job as to their actual existence. We have been weak on both points—too ready to employ a qualified new applicant rather than to meet the temporary inconvenience of transferring a qualified present employee from some position of lower pay and rank, and too likely to take for granted that our people did know of the opportunities which really had been open to them.

For positions from which steps to any higher positions are not readily taken, there should be a fairly wide range between the minimum and maximum salaries to provide for reasonable advancement for worthy employees who are not fitted for promotion to other and better jobs. The purely automatic progression from starting rate to the top of the range is not advisable, however. Up to the mid-point is good. This is a guarantee of a minimum annual increase based on faithfulness and growth of experience, but beyond that mid-point an area should remain to be entered only by those of more than average merit, industry, and value as employees.

7. *He wants safe and pleasant working conditions.* It should hardly be necessary to amplify that statement or to justify its reasonableness—yet everyone recalls at least one establishment with a shiny front outside and a dark passageway, a loose handrail, a dingy restroom, or a low, hot, stuffy, locker room inside. One cynic, after inspecting the employee restroom facilities of a prominent business organization said, "If they really want someone to feel as if he were getting a promotion around here, the biggest thing they could do for him would be to give him a key to the officers' washroom." There is no excuse for lack of air, light, and fresh paint, in any place where employees must congregate, and a little inspired use of some interior decoration can improve morale.

8. *Our employee wants to know what he is entitled to and to be sure he gets it fairly and in the same proportion as other employees.* That means, first of all that you must make up your mind regarding the, rights you should grant. He is a smart employer who clarifies his own thinking before he is forced to do it under pressure of immediate and drastic action. You may have to modify such a position occasionally, but accept your responsibility in making the rules—and then be sure that your workers know what they are. Be sure that they know why your policy is what it is. Incidentally the word "policy" is much less offensive in its implications than the word "rules." People are individualists. They dislike being bound by "rules," and frequently rebel against them. They prefer to talk about "policies," and take a measure of pride in supporting them.

Furthermore, it is important to make one policy apply to all. Listen to the janitor's troubles with the same courtesy you would use in listening to those of your chef or head dietitian. Do not penalize one employee for an act that would not draw an equal penalty against another in similar circumstances. Do not grant a special favor to one

which you are not prepared to grant to others under the same conditions. Call it fairness, non-discrimination, or old-fashioned "square shooting," it is the one factor above all others which endears an employer to his employees and which will often make it possible for them to overlook other things they don't like.

There is only one solution of the labor-management problem, and that applies just as much in the mass as it does in your simple relationship between a worker and an employer. There has to be "give and take" and cooperation, with the retention of mutual self-respect and regard. There are inevitably differences of opinions. However, adjustments can be made within a general pattern of harmonious living. This relationship will work if each side approaches it with honest belief in the good faith of the other; if each will deal openly, speak the truth, keep his word, and avoid unfair advantage. Is that too much reaching for Utopia? Call it that, if you will, but until that condition does exist, labor and management can never bargain together with hope for any but temporary benefits. Each needs the other, neither can exist without the other. Isn't it about time that both begin to act accordingly?

We can have employee loyalty based on satisfaction and mutual understanding. Does "loyalty" sound strange in these days? Old-fashioned? Dated? It does, in the old sense of unquestioning, humble obedience, but not in the higher sense of mutual fidelity and faithfulness, where each recognizes the interests of the other, and recognizes that good for one can be good for both. The day when that will be a generally accomplished fact may seem far distant, but as long as you can say it ought to be done, then it must be done.

Questionnaires Can Determine Employee Morale

A simple and effective opinion ballot to measure morale or employee attitudes has been developed. It is an unsigned four-page questionnaire, and as a rule consists of six parts:

1. The objectives of the survey are explained in understandable terms.
2. Each employee checks the following information: shift, department, sex, age, length of service, and earnings.
3. Thirty specific questions are presented concerning the institution and the immediate boss. Several possible answers are given and the employee checks one. Employees may be asked, for example, "How does your supervisor correct employees who have done something wrong?: a. He reprimands them out in front of other employees; b. He uses sarcasm in front of others; c. He is plain spoken but takes employees aside; d. He criticizes in private and explains why; e. His criticisms are helpful and never given in front of others; his manner is friendly." Two more questions may be added, such as: "Which one of the following in your opinion shows least consideration to employees?" The second substitutes the word "most" for "least." Below each question are listed the top executives, and, as occasion warrants, the supervisors.
4. Approval or disapproval of company practices, as: The cafeteria is satisfactory; I feel that the company is making no effort to better relations between employees and management.
5. To determine the value placed by employees upon certain factors relating to employment, a series of from 8 to 12 statements is added. Opposite each statement employees may place an "x" under that particular column which shows *how much* that item means to their happiness and well being in their work.
6. Even though all the questions can be answered with a cross, space is provided for any complaint or comment the voter may care to register.

A weighted method of scoring replies has been devised for such ballots to determine accurately the attitude of employees. The making of a morale survey, however, is but a step toward the elimination of sickly attitudes. Normally, the findings of such a survey can be handled in one of three ways:

1. Situations where poor attitudes are justified should be corrected.
2. Poor attitudes toward situations which the management, after serious consideration, decides are not in need of revision, should be rectified by explaining management's position.
3. Strong favorable attitudes toward people, policies, or practices should likewise be studied in an effort to comprehend the probable influences which have brought them about.

Managements that understand the cause of employee attitudes will succeed in the establishment of safe and sane working relationships.—*Excerpts from Morale Can Be Determined—and Bettered, by Eugene J. Benge, Hospitals 20: (June) 79.*

Editorial

MOBILIZING AGAINST HUNGER

A summary report of the Special Meeting on Urgent Food Problems held in Washington recently under the auspices of the Food and Agriculture Organization of the United Nations.[1]

Representatives of 22 governments and 6 international organizations recently took part in an emergency session of a special conference on urgent food problems to consider the world-wide crisis in food. International efforts to combat famine have thus far been almost on a month-to-month basis, and at best have been only a temporary solution. In facing the long-term urgency of this crisis, the conference opened the way for more adequate international machinery that will last through the duration of the food emergency and will dovetail smoothly at the end of the period with more permanent instruments of world food policy.

Sir John Orr, the Food and Agriculture Organization's Director-General, in his opening statement to the conference referred to the appraisal of the world food situation prepared by FAO, and added: "Even on the most generous assumption, which it would be unsafe to make, there will be a big gap between requirements and possible supplies."

Clinton P. Anderson, U. S. Secretary of Agriculture, was elected chairman of the conference. Secretary Anderson, Herbert Hoover, Honorary Chairman of the President's Famine Emergency Committee, and Fiorello H. LaGuardia, Director-General of UNRRA, presented statements early in the conference stressing the need for more adequate international machinery to deal with food problems.

[1] In May, 1943, representatives of 44 countries were invited on the initiative of President Roosevelt, to the United Nation's Conference on Food and Agriculture at Hot Springs. Among these men and women were some of the best-known world authorities on agriculture, food, and nutrition. On the recommendation of the Hot Springs Conference, the United Nations Interim Commission on Food and Agriculture was set up to plan a permanent organization. The previous activities of the permanent organization have been reviewed in this JOURNAL, June, 1946, p. 540.

Three committees were established to consider the major problems. Each country and organization present had the opportunity to be represented on each committee.

Committee I—World Food Appraisal, made specific recommendations that an international food, agriculture, and fisheries research and information service be created to provide complete and accurate information about the current aspects of the world food situation and to keep the situation under continuous review. The Director-General was requested to establish such a service "as a matter of immediate urgency" and publication of the first appraisal was called for between September 1 and 15, 1946. Subsequent appraisals were requested quarterly for at least as long as the world food situation remains serious. It was assumed that basic information would be supplied by the various governments, but the committee urged that arrangements be made for members of the information service to visit other countries to clarify problems and adjust difficulties. This service, in addition to becoming a continuing function of FAO, would be of particular value to the Interim International Emergency Food Council.

Committee II—Conservation and Expansion of Supplies, considered how to make the best use of the 1946 harvest and how to make the 1947 harvest as large and as well directed as possible. In addition the committee considered general principles to be followed in procuring, collecting, allocating, and distributing foodstuffs in short supply.

As a means of conserving food grains, the committee recommended that large quantities of grain be diverted from livestock to human consumption and that pasture, hay, straw, and other bulky fodder be used to the maximum. To make the best use of grain fed to livestock, priority was recommended for milk cows and work animals, and maintenance of a nucleus of high quality breeding stock. It was urged that feeding of other stock, especially pigs and poultry, be reduced to the minimum. Price policies and control of concentrate feed were suggested as ways of accomplishing these ends; and prompt acquisition of grains by governments immediately after harvest was recommended.

As a further means of conserving food grains, the committee recommended an extraction rate of not less than 85 per cent in all countries, light milling of rice, dilution of wheat flour by at least 5 per cent with other products, holding industrial users of grain (for alcohol, etc.) to current low levels and reducing it further if possible, and pressing a campaign against waste on farms, in storage, and in homes. A number of recommendations were also made for conserving potatoes, pulses, fats, sugar, fish, and dairy products.

In considering measures that would facilitate the expansion of 1947 production, the committee recommended the cultivation of additional acreage and increased fertilizer production. The fear of eventual surpluses was considered and recommendations were made that FAO study methods of disposing of agricultural surpluses and the whole problem of securing reasonable and adequate returns to agriculture, and report its findings promptly.

The committee further recommended that wartime controls be reestablished or maintained as long as shortages continue; that disorderly competitive buying of foods in short supply be eliminated through procurement methods that provide fair participation to all claimant countries; and that food distribution in importing countries be adequately controlled to make sure that supplies are used in the most effective way.

Committee III—Future Machinery, acting on a proposal of the three member nations of the Combined Food Board (the United States, the United Kingdom, and Canada) and on modifications of that plan proposed by several other committee members, recommended that the Combined Food Board be succeeded by an International Emergency Food Council with much broader membership. The committee recommended that this council continue during the shortage of basic foodstuffs with a provisional termination date set for December 31, 1947, with the provision also that the date be changed as events warrant.

FAO and UNRRA were directed to work closely with the new organization and to participate in its work so that there could be a smooth transition between the short-term and the long-term objectives of FAO.

Plans were made for the next annual conference to open in Copenhagen, Denmark on September 2. At that time the Director-General will present his proposals for a permanent world food program.

CANADIAN RED CROSS TO STUDY EFFECTIVENESS OF SCHOOL FEEDING PROGRAM

A long-term study to determine the effect of a school feeding program on the health and efficiency of the school child was approved in June by the National Executive of the Canadian Red Cross Society. The cooperation of the Canadian Department of National Health and Welfare was offered in undertaking this program. Dr. F. F. Tisdall, who is chairman of the National Red Cross Nutrition Committee, outlined the plan for the pilot study which will involve an expenditure of $65,000.

During the period of the pilot study the Canadian Red Cross Society will feed a group of 200 children who will be given extensive physical and dental examinations at the beginning and the end of a two-year study. Comparisons will be made with a group of control children. If significant results are obtained, this study will be extended to a number of points in Canada.

The proposed study has stimulated interest in many countries. In order to utilize this interest to the best advantage, the National Nutrition Committee is planning an international meeting in the fall for extensive discussion of the plan. The following people have indicated that they would send representatives: Sir Wilson Jameson, Chief Medical Officer of Health for Great Britain and Dr. F. G. Boudreau, Chairman of the Food and Nutrition Board of the National Research Council, Washington, D. C.; Dr. Russell Wilder of the Mayo Clinic. Dr. Charles Glen King of the Nutrition Foundation, Inc. and Melva Bakkie of the Nutrition Section of the American Red Cross are also expected to be in attendance. In preparation for this work, Mrs. Allan Stevenson, National Director of Nutrition Services for the Canadian Red Cross Society, plans to visit Great Britain to make a survey of their school feeding and to consult with both the British Ministry of Health and the educational authorities relative to the administration of the program in Great Britain.—*Rosamund Stevenson, National Director, Canadian Red Cross Society.*

QUARTERLY REVIEW OF PEDIATRICS

This new journal will be of immediate interest both to hospital dietitians and to public health nutritionists who wish to have a summary and chronicle of pediatric progress that is well organized, reliable, up-to-date, and complete.

The primary function, as described in the Foreword, is to collect and present summaries and references to all the significant articles from this country and abroad which deal with disease conditions, health, growth, and mental welfare from infancy through adolescence. The abstracts are prepared by physicians and medical bibliographers familiar with the subjects under consideration and to which interpretive or critical comments are added by the editors.

For convenience of reference, the abstracts are grouped into 34 categories, including Allergy; Gastrointestinal System; Growth; Hygiene and Public Health; Infant and Child Feeding; Metabolic

and Systemic Disorders; Milk, Foods; Nutrition; Psychology, Psychiatry; and Skin, Teeth, and Hair. Under each classification, immediately following the abstracts, are listed review articles, articles with self-explanatory titles, and others for which only a brief note is needed. A "Pediatric Bookshelf" department reports informatively on the new books in the field. It is stated that in the analytic comments on the new books, expert aid is given in judging pertinence and value of the contributions.

Promotions, Army Medical Department Dietitians

The following Medical Department Dietitians have been promoted during the month of June 1946. They are on duty in Army hospitals in this country and overseas.

First Lieutenant to Captain

Marsh, Kathryn M., R-337

Second Lieutenant to First Lieutenant

Biederman, Mary A., R-2158
Davidson, Mary L., R-2139
DeNegri, Anna T., R-2041
Goldberg, Rae R., R-2160
Goldschmidt, Lotte, R-2249
Hines, Elizabeth, R-2124
Lawson, Muriel C., R-1129
Leahy, Margaret I., R-2025
Robbins, Selma F., R-2092

Army Medical Department Dietitians Separated from the Service[1]

The following dietitians have been separated under the provisions of the Separation Policy established by the Surgeon General for Medical Department Dietitians.

Captains

Stroup, Loriene V., R-273, Cheney, Wash.
Terrell, Mary R., R-1166, Tallahassee, Fla.

First Lieutenants

Agneberg, Olivia R., R-1327, 641 5th Avenue, South Glasgow, Mont.
Anderson, Jean A., R-1267, 4028 Robinson St., Duluth, Minn.
Barker, Doris M., R-1299, 865 Don Diego, Santa Fe, N. M.
Bodal, Ella R., R-962, Maxbass, N. D.
Bollenbach, Doris M., R-272, 640 Cleveland Ave., Elizabeth, N. J.
Bounds, Margaret V., R-121, 219 W. 8th St., Laurel, Del.
Bradley, Billie M., R-2107, 110 Hill St., Thomasville, Ga.
Brown, Mary E., R-455, 700 N. Three Notch St., Troy, Ala.
Burbank, Barbara, R-876, 703 W. 7th, Concordia, Kan.
Castle, Winifred L., R-1287, 353 W. 8th Ave., Columbus, Ohio
Chabott, Arline C., R-123, Laurel St., Carbondale, Pa.
Chapin, Hazel R., R-1343, Sheffield, Mass.
Chapman, Bettie G., R-1373, Brownsville, Tenn.
Chase, Anna M., R-934, Lincoln, Nebr.
Clifford, Deborah M., R-1253, 52 Milton Ave., Hydo Park, Mass.
Cook, Carrol M., R-1316, RFD #1, Grafton, Ohio
Collier, Martha A., R-1426, 2400 E. 13th Ave., Denver, Colo.
DeWees, Sarah F., R-911, 529 Milford Ave., Columbus, Ohio
Dilworth, Murell M., R-329, 603 N. 4th St., Austin, Minn.
Doak, Vivian A., R-52, 5111 West Pico Blvd., Los Angeles, Calif.
Finch, Mary S., R-1084, 505 Chestnut St., Roselle, N. J.
Findle, Mary D., R-1220, 718 Chestnut St., Irwin, Pa.
Fletcher, Mary V., R-2138, Castlewood, Va.
Frolich, Louise A., R-953, 3552 Broadway, Kansas City, Mo.
Goecker, Marie A., R-1354, 20725 Erie Rd., Rocky River, Ohio
Gonnella, Arline A., R-1032, 3851 Russell Ave., Minneapolis, Minn.
Graham, Edith M., R-58, Wall Lake, Ia.
Harrison, Eleanor L., R-1095, 33 Mill St., Angola, N. Y.
Hogan, Mabel E., R-607, 1004 E. End Ave., Wilkinsburg, Pa.
Hyde, Katherine L., R-314, 1030 E. 13th St., Carthage, Mo.
Krause, Margaret J., R-1020, 1900 Vallejo St., San Francisco, Calif.
Lowe, Mary S., R-2010, 1144 Ballard St., Dallas, Tex.
Lundstrom, Evelyn M., R-2050, 138 Pleasant St., Orange, Mass.
McDonald, Gertrude A., R-335, % Mrs. Ida McDonald, Ambassador Hotel, Milwaukee, Wis.
McKillip, Sarah E., R-2100, 401 Walnut St., Hollidaysburg, Pa.
McKnight, Marjorie A., R-376, 24 High St., Cambridge, Md.
Maisner, Stella R., R-1160, Amherst Rd., Leverett, Mass.
Malery, Marjorie V., R-871, 1414 Florida Ave., N.W., Washington, D. C.
Miller, Helen P., R-1338, 413 Wester Menter St., Phila., Pa.
Mortimer, Agnes C. B., R-396, 229 East Duval St., Lake City, Fla.
Nelson, Helen C., R-2174, Rugby, N. D.
Newell, Barbara M., R-2022, 78 Harwich St., Hartford, Conn.
Ogden, Mary G., R-912, 1276 Smith Ave., Birmingham, Mich.
Pickering, Ethel M., R-1420, 84 Eastern Ave., Somerville, N. J.
Rayford, Arthalia L., R-351, Manchester, Somerset, Bermuda Salem, Va.
Remington, Mary G., R-450, 118 N. Riverside St., Ames, Iowa
Reynolds, Daphne, R-2073, 3020 Que St., N.W., Washington, D. C.
Richards, Betty R., R-1134, Bridgewater, S. D.
Shapiro, Leona R., R-1222, 4058 Patterson Ave., Chicago, Ill.
Tanner, Mila V., R-81, 1049 W. Porphyry, Butte, Mont.
Walz, Renee A., R-1318, 211 South 8th St., Fargo, N. D.
Woideck, Faith S., R-580, 3017 Fenton Rd., Flint, Mich.
Woodruff, Virginia M., R-1227, 41 Prospect Ave., Catskill, N. Y.
Young, Faye M., R-256, 140 Lakeview Ave., N.W., Atlanta, Ga.
Zeller, Mary L. C., R-1211, Rockholds, Ky.
Zerell, Adelheid M., R-1293, Eden Valley, Minn.

Second Lieutenants

Bissell, Elizabeth B., R-2445, RR #1, Paulding, Ohio
Boulware, Vera T., R-2292, 4545 Broadway, Chicago, Ill.
Cassity, Agnes B., R-2313, 2202 Broad St., Selma, Ala.
Frey, Sally E., R-2208, 425 Chestnut St., Reno, Nev.
Gardner, Shirley A., R-2191, 3344 Gallatine Rd., Toledo, Ohio
Graves, Barbara, R-2342, 29 Central St., Newport, Vt.
Hopkins, Rosemary J., R-2185, 222 Merry St., Madison, Wis.
Hovey, Sally L., R-1386, 833-34th Ave., North Seattle, Wash.
Howard, Opal, R-1156, 437 Hollaway Ave., San Francisco, Calif.
Jones, Carol A., R-2343, 509 S. Adams, Junction City, Kan.
Kissick, Carolyn V., R-2279, Mount Hope, Kan.
Mueller, Betty M., R-2385, 513 Ann St., Lake Charles, La.
Patterson, Mary A., R-2125, New Buffalo, Mich.
Pogell, Geraldine L., R-1382, 202 Matamores St., Laredo, Tex.
Radebaugh, Phyllis R., R-1248, 2868-8950th St., West Magna, Utah
Rossing, Ruth M., R-2065, Argyle, Wis.
Ruggles, Dorothy M., R-727, 3006 Royal St., Los Angeles, Calif.
Walker, Catherine L., R-2263, 210 Rushbrook St., Jermyn, Pa.
Watson, Ruth E., R-2106, Route 3—Box 5, Kent, Wash.
Weber, Dorothy C., R-2326, 1103 Scott, San Francisco, Calif.

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[1] Second Lieutenant Marian C. MacDonald, R-266, was not separated as previously reported in the JOURNAL.

First Lieutenant Cynthia Pine, R-1231, was incorrectly listed as Second Lieutenant under Army Medical Department Separations in the May, 1946 issue of the JOURNAL.

Captain Ella R. Bodal, R-962, was incorrectly listed under Promotions, Army Medical Department Dietitians, Second Lieutenant to First Lieutenant in the May, 1946 issue of the JOURNAL. This rank had been received in March, 1945.

First Lieutenant Elizabeth Cleghorn, R-421, who was separated in November, 1945, has been recalled to active duty.

New Appointments, Veterans Administration

Ruth Spencer, Assistant Chief, Dietetic Division; Branch Office, No. 1, Boston, Mass.—June, 1946. Formerly First Assistant to Chief Dietitian, Massachusetts General Hospital, Boston, Mass.

Mary Gardner, Dietitian; VA Hospital, Rutland Heights, Mass.—March, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Frances P. Kelley, Chief; Dietetic Division; Branch Office No. 2, New York—June, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II; formerly Chief Dietitian, VA Hospital, Brecksville, Ohio.

Harriet Ehrenreich, Dietitian; VA Hospital, Bronx—April, 1946. Formerly Dietitian, Monmouth Memorial Hospital, Long Branch, N. J.

Beverly Fein, Dietitian; VA Hospital, Bronx—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Hilda Katz, Dietitian; VA Hospital, Bronx—April, 1946. Formerly Dietitian, Riverside Hospital, New York.

Cecelia Klainer, Dietitian; VA Hospital, Bronx—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Muriel Powel, Dietitian; VA Hospital, Bronx—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Sathi Yacukoci, Dietitian; VA Hospital, Bronx—April, 1946. Formerly Dietitian, Womens Hospital, New York.

Catherine McMakin, Dietitian; VA Hospital, Northport, Long Island—April, 1946. Formerly Graduate, Army Training Course, Roanoke General Hospital.

Harriet J. Goodale, Dietitian; VA Hospital, Sunmount, N. Y.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Florence M. O'Brien, Assistant Chief; Dietetic Division, Branch Office No. 3, Philadelphia—April, 1946. Formerly Chief Dietitian, VA Hospital, Lyons, N. J.

Dorothy M. Dreyer, Dietitian; VA Hospital, Ft. Washington, Maryland—March, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Helen Dreyer, Dietitian; VA Hospital, Ft. Howard, Md.—April, 1946. Formerly Graduate, Hines Training Course, Hines, Ill.

Mary J. Garner, Dietitian; VA Hospital, Mt. Alto, Washington, D. C.—May, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Mary D. Huggins, Dietitian; VA Hospital, Ft. Howard, Md.—March, 1946. Formerly Graduate, Hines Training Course, Hines, Ill.

Catherine Johnson, Head Dietitian; VA Hospital, Richmond, Va.—March, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Miriam Mallory, Dietitian; VA Hospital, Richmond, Va.—May, 1946. Formerly Dietitian, Glenn Dale Sanatorium, Glenn Dale, Md.

Naomi Thacker, Dietitian; VA Hospital, Ft. Howard, Md.—April, 1946. Formerly Head Dietitian, Lynchburg General Hospital, Lynchburg, Va.

Frances Wiegand, Assistant Chief Dietitian; VA Hospital, Richmond, Va.—March, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Mildred Willis, Head Dietitian; VA Hospital, Miami Beach, Fla.—May, 1946. Formerly Dietitian, Columbia General Hospital, Columbia, S. C.

Ann B. Eyl, Assistant Chief Dietitian; VA Hospital, Louisville, Ky.—May, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Vivian Loe, Chief Dietitian; VA Hospital, Louisville, Ky.—May, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II; formerly Chief Dietitian, VA Hospital, Indianapolis, Ind.

Anita Shaefer, Head Dietitian; VA Hospital, Louisville, Ky.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Lillian C. Shuter, Assistant Chief Dietitian; VA Hospital, Ft. Custer, Mich.—May, 1946. Formerly Waves, World War II; formerly Chief Dietitian, VA Hospital, Sunmount, N. Y.

Donetta Cox, Head Dietitian; VA Hospital, Hines, Ill.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Jean Fleming, Assistant Chief Dietitian; VA Hospitaal, Hines, Ill.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Betty B. Gebbie, Head Dietitian; VA Hospital, Hines, Ill.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Harriet T. Jones, Dietitian; VA Hospital, Hines, Ill.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Soini Makivirta, Dietitian; VA Hospital, Hines, Ill.—March, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Cynthia C. Pine, Dietitian; VA Hospital, Hines, Ill.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Ellen E. Rork, Head Dietitian; VA Hospital, Hines, Ill.—May, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Helen Rudisill, Dietitian; VA Hospital, Hines, Ill.—March, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Dorothy J. Williams, Dietitian; VA Hospital, Waukesha, Wis.—May, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Carolyn Debartolo, Dietitian; VA Hospital, Downey, Ill.—May, 1946. Formerly Dietitian, United Air Lines.

Helen L. Kesner, Dietitian; VA Hospital, Jefferson Barracks, Mo.—April, 1946. Formerly Mess Officer, U. S. Army, World War II.

Betty I. Bonnett, Chief, Dietetic Division; Branch Office No. 9, St. Louis, Mo.—May, 1946. Formerly Chief Dietitian, VA Hospital, Downey, Ill.

Grace L. Scholz, Assistant Chief, Dietetic Division; Branch Office No. 9, St. Louis, Mo.—May, 1946. Formerly Chief Dietitian, VA Hospital, Roanoke, Va.

Elma Miller, Dietitian; VA Hospital, Amarillo, Tex.—February, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Ruth Frey, Dietitian; VA Hospital, McKinney, Tex.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Helen Singleton, Dietitian; VA Hospital, McKinney, Tex.—April, 1946. Formerly Dietitian, Charity Hospital, Houston, Tex.

Barbara Corbin, Dietitian; VA Hospital, New Orleans, La.—April, 1946. 1946. Formerly Dietitian, Hotel Dieu New Orleans, New Orleans, La.

Ruth Latimer, Dietitian; VA Hospital, Alexandria, La.—April, 1946. Formerly Graduate, Los Angeles Training Course, Los Angeles, Calif.

Nell Cooke, Dietitian; VA Hospital, Biloxi, Miss.—February, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Edna Stinson, Dietitian; VA Hospital, Jackson, Miss.—June, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Dorothy Conroy, Chief, Dietetic Division; Branch Office No. 11, Seattle, Wash.—May, 1946. Formerly Chief Dietitian, VA Hospital, Ft. Harrison, Mont.

Sophie F. Halverson, Dietitian; VA Hospital, San Fernando, Calif.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Jayne A. Herod, Dietitian; VA Hospital, San Fernando, Calif.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Merle M. Sellers, Dietitian; VA Hospital, Tucson, Ariz.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Phyllis A. Castor, Dietitian; VA Hospital, Livermore, Calif.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Mary P. Thompson, Dietitian; VA Hospital, Livermore, Calif.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Glenna A. Fine, Dietitian; VA Hospital, Los Angeles, Calif.—April, 1946. Formerly Montebello, California, Board of Education.

Bernice M. Sexaur, Dietitian; VA Hospital, Los Angeles, Calif.—May, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Leveera L. Burke, Dietitian; VA Hospital, Los Angeles, Calif.—May, 1946. Formerly Dietitian, California Hospital.

Ade E. McGinley, Chief Dietitian; VA Hospital, Van Nuys, Calif.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II; formerly Chief Dietitian, VA Hospital, Portland, Ore.

Dian K. Brandt, Head Dietitian; VA Hospital, Van Nuys, Calif.—March 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Jeanette E. Dennis, Dietitian; VA Hospital, Van Nuys, Calif.—March, 1946. Formerly Dietitian, VA Hospital, Los Angeles, Calif.

Ernestine Putnam, Dietitian; VA Hospital, Van Nuys, Calif.—April, 1946 Formerly University of Michigan Hospital, Ann Arbor, Mich.

Dorothy E. Taylor, Dietitian; VA Hospital, Van Nuys, Calif.—April, 1946 Formerly Medical Department Dietitian, U. S. Army, World War II.

Mary Moran, Assistant Chief, Dietetic Division; Branch Office No. 13, Denver, Colo.—June, 1946. Formerly Chief Dietitian, VA Hospital, Whipple, Ariz.

Emma Chapman Pratt, Dietitian; VA Hospital, Salt Lake City, Utah—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II; formerly Dietitian, VA Hospital, Salt Lake City, Utah.

Genevieve M. Walsh, Dietitian; VA Hospital, Aspinwall, Pa.—April, 1946 Formerly Medical Department Dietitian, U. S. Army, World War II

Marion C. Kylander, Dietitian; VA Hospital, Aspinwall, Pa.—April, 1946. Formerly Dietitian, Southside Hospital, Pittsburgh, Pa.

Ida M. Mead, Head Dietitian; VA Hospital, Lyons, N. J.—April, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Mary T. Finnerty, Dietitian; VA Hospital, Lyons, N. J.—May, 1946. Formerly Medical Department Dietitian, U. S. Army, World War II.

Current Comment

FOOD AND PEACE[1]

ESSIE WHITE COHN, PH.D.

Professor of Chemistry, University of Denver

The role of the dietitian in our food economy is becoming more significant with each passing year. She is responsible for maintaining high standards in systematically regulated kitchens, for the quality and tastefulness of the prepared foods, for the appearance of foods and trays, for a proper and adequate dietary, and for the maintenance of the spirit of service and patience so necessary in making progress in this profession.

Nutritionists and dietitians have been attempting for some time to point out the importance of a well-balanced dietary in the life of every individual. Is it too much to imagine that peoples of the world might be more likely to live in peace and harmony if all were properly fed? A starving people cannot help but be dissatisfied and discouraged. On the other hand, a well-fed people are more likely to accept criticisms and hardship with an understanding, even though it may be a more questioning mind.

International accord is founded on a calorie base and a piece of bread may determine the peace of the world. Actually, we have no cause to find fault with the darker flour now on the market, because it is difficult to distinguish bread made from the wheat flour to which we were accustomed and the present grade of wheat flour. As a matter of fact, the present flour is about three times richer in vitamin B_1. The present 80 per cent extraction flour is milled to the extent of 80 lb. from every 100 lb. of wheat. The former flour was 72 per cent extracted; that is, each 100 lb. of wheat yielded 72 lb. of flour. It is thoughtless to believe that the slight darkening in color indicates an inferior product.

What is the value of thiamin in the dietary? Every dietitian is familiar with its functions in the promotion of growth, and the maintenance of proper nervous stability. It has been found that individuals with practically no thiamin intake become unstable, listless, and lethargic. It is a well-known fact that Germany held the peoples of conquered countries in bondage through this knowledge. These peoples subsisted on a dietary lacking in thiamin. As a result, they had no desire to work and even less desire to live.

Man courts difficulty when he tries to improve on nature. When man began to refine wheat to make white flour, he did so by removing the outer bran of the wheat. He threw this outer bran to the pigs, and they thrived because the bran contained important minerals, such as iron and phosphorus, and important vitamins, notably vitamin B_1. Finally, as a result of the untiring efforts of scientists, it was learned that whole grains are more nutritious than the refined. In the meantime, however, people had become accustomed to the refined flour and preferred it to the whole wheat flour, chiefly for reasons of appearance. As a result, it became necessary to enrich flour and cereals. How much simpler it would have been to use a flour of higher extraction in the first place. Furthermore, can we be certain that we are reinforcing flour with all of the necessary constituents which were originally discarded with the bran? Man seldom succeeds in improving on nature's foods.

Another problem causing concern is the restriction of sugar which has been necessary during the war and postwar years. Perhaps sugar rationing is a blessing rather than a curse. Why? Recent evidence points to the fact that a high sugar and/or starch consumption predisposes to carious or decayed teeth. In 1898, the per capita consumption of sugar per year was about 10 lb. In 1938, the per capita consumption was 108 lb. Small wonder that the incidence of dental caries has markedly increased. How sugar or starch acts in the mouth to cause decayed teeth is still not entirely solved. Laboratory experiments, however, point to the fact that one pathway by which decay starts results from the action of an organism known as the *lactobacillus acidophilus*, which thrives in the mouth in the presence of large amounts of sugar or starch but is markedly inhibited on a low carbohydrate intake. This organism is known to ferment sugar, forming acids such as lactic acid which may have a solvent effect upon the teeth. It is no longer believed that caries results only from impaction of fermentable material between the teeth. Children from well-to-do homes who indulge in sweets throughout the day have a greater tendency to decayed teeth than youngsters who come from impoverished homes.

[1] Presented at the Annual Meeting of the Colorado Dietetic Association, April 3, 1946.

It is well known that Eskimos have few decayed teeth. Eskimo children, instead of licking on hard candy, spend their time sucking frozen eggs. When Eskimos come to this country a marked decay of the teeth soon begins to become manifest.

It may be of interest to comment on the importance of fluorides in the dietary in connection with the problem of tooth decay. Experimental data point to the conclusion that the presence of fluorides in drinking water to the extent of about two parts per million will prevent dental caries. More than two parts per million of fluoride in water causes the teeth to become stained. Although this stain is unattractive, individuals possessing it have less tendency to decayed teeth. On the other hand, fluorides in the water present in an amount which is less than two parts per million do not protect completely from caries. Once the amount of fluoride needed for protection of teeth against decay has been established, it may prove practical to add fluorine to the drinking water. A large scale experiment of this nature has been started in Kingston and Auburn, New York.

A few words relative to vitamin pills and concentrates should not be out of place here. We all recognize that it is more wholesome to obtain vitamins through our regular food intake than through pills and concentrates. The amount of vitamin pills and concentrates consumed annually is tremendous. Furthermore, this situation is disturbing when we recognize that a high intake of some of the vitamins notably vitamins A and D predisposes to body disturbances. It is, therefore, important that we as trained scientists constantly advocate the importance of a well-balanced dietary in lieu of pills and concentrates.

At the same time, we must recognize that if peoples are to have well-balanced and adequate dietaries, there must be a balance between production, distribution, and consumption. After all is said and done we must concede that a well fed and healthy people will be more amenable to peace than a group which is undernourished and generally poverty stricken.

THE CURRENT MEAT SITUATION[1]

REBA STAGGS

Assistant Director, Department of Home Economics, National Live Stock and Meat Board

During the past few months, the subject of meat has been discussed more often than any other topic in the field of foods. Meat has been in the headlines. It has been discussed over the radio. It has been the subject of committee meetings, conferences, conventions, and other gatherings.

[1] Presented at Conference of Dietitians of 16th Annual Tri-State Hospital Assembly, Chicago.

The reason for this nationwide interest is not hard to find. Consumer incomes have been high all during the war and continue to be so. Whenever people have more money to spend, they spend more for meat as well as for milk and other dairy products, poultry products, fruits, and vegetables. In other words, they spend more for the foods which are most essential in the adequate diet.

There is little doubt that if meat were available, consumption would be 170 lb. or more per capita this year. But according to the best estimates the supply per person this year will be between 145 and 150 lb. In other words, the supply does not equal the demand, hence the interest of the consuming public in all phases of the subject.

The meat picture has been one of confusion. The livestock growers and feeders on our farms and ranches have been confused. The famine situation in other lands has complicated their problems. They have been advised by the government that feed grains for livestock must be conserved in order that more grain may be exported. Hogs are to be marketed at lighter weights and cattle sold at a lesser degree of finish than usual. In spite of the fact that the production of meat animals is a major enterprise on a high percentage of our farms, it is being threatened by the famine overseas and other factors.

Any attempt to predict the meat situation would be in the nature of crystal gazing. The meat packers of the nation have been disturbed over the situation. They find that black market operations have increased to such a point that it is virtually impossible for them to obtain a sufficient number of meat animals, especially beef cattle, to keep their plants running and their employees at work. The legitimate meat packer has purchased his meat animals in complicance with OPA regulations. He has been outbid by the black marketeer who ignores OPA prices, who grades, cuts, or sells beef out of line with OPA regulations, and who either juggles his records or does not submit records at all. These are a few of the reasons why packers have not been able to supply meat to stores.

It is estimated that the black market in meat has cost consumers millions of dollars every day. The extent to which this has affected the consuming public has been determined recently by a statistical research organization working with homemakers who shopped in 11 cities from New York and Washington, D. C., to Los Angeles. In this survey, purchases of beef, veal, pork, and lamb in 1,803 stores were carefully checked. All meat purchased was graded by meat experts from the Army and weighed by the staff of the research organization. The results were interesting, enlightening, and alarming.

This study showed that 83 per cent, or five out of every six stores, sold meat at prices above OPA ceilings. In Chicago the figures was 91 per cent. As an average for 11 cities which have a consumer

An aversion to milk, or digestive upsets caused by the large, hard curds of untreated cow's milk, often make it difficult to insure adequate intake of this food so essential to child and adult nutrition. In such cases, "Junket" Brand Rennet Powder or Rennet Tablets "work magic" with milk. • By enzymatic action, rennet transforms milk into easily digested rennet-custards, which retain all the food values of milk—yet form small, soft curds in the stomach. • "Junket" Rennet Powder is already sweetened and comes in six natural flavors. "Junket" Rennet Tablets are not sweetened or flavored. Recommend either for making deliciously tempting rennet-custards. Full details and trial packages sent on request.

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population of 15 million, it was found that the price paid for beef was 26 per cent higher or 10 cents a lb. above the OPA ceiling. Veal prices averaged 24 per cent over ceiling, pork 15 per cent, and lamb 6 per cent.

During World War II we witnessed a record-breaking meat production. Meat was recognized as a major food item and its production rose from less than 19 billion lb. in 1940 to more than 24½ billion lb. in 1944, a gain of approximately 30 per cent. This meat served three major groups—the Armed forces, the civilian population, and our Allies. In the five-year period 1941–45 inclusive, more than 14 billion lb. of our meat were used by the Armed forces and about 8⅓ billion lb. were shipped overseas. In spite of the heavy demand, our civilian consumption of meat averaged annually about 11 lb. more per capita than in the five-year prewar period 1936–40. In 1944, our per capita consumption of meat reached about 150 lb. In 1945, mainly because of more than a 2-billion-lb. drop in production, it dropped to about 132 lb.

On January 1, 1946, the U. S. Department of Agriculture released its report on the number of meat animals on farms. Although the report revealed that our cattle population had dropped from the previous year, it was still the third largest cattle population on record. Hog numbers had gained over the previous year, but the number of sheep and lambs had dropped.

Not long ago the government issued a forecast estimating that our meat production in 1946 would be about 23 billion lb. or about 5 million lb. more than in 1945. It has also estimated that there will be more beef and more pork this year than last but somewhat less lamb and veal. As stated before, the estimated per capita consumption is 145 to 150 lb. However, the changing situation within the livestock and meat industry may alter these and other estimates.

While the meat picture continues to be confusing, effort is constantly being made to help those engaged in small and large quantity food preparation to make the most of the meat they can purchase. Many programs have been conducted by the National Live Stock and Meat Board on cooking meat at low temperature. By June 3 programs had been conducted in 45 leading cities from New York to California and Minnesota to Texas. Stress was placed on the importance of cooking all meat—roasts, steaks, chops, patties, pot roasts, and stews—at low temperatures to reduce shrinkage and produce meat with the greatest palatability. A large number of experimental studies have been made on the effect of cooking meat at constant high and low oven temperatures. However, many persons are just now learning for the first time that oven temperature alone can cause a wide variation in cooking losses. Experiments have been repeated on cooking identical seven-rib roasts of beef, roasting one at 250° F. or a constant low oven temperature and roasting the other at 450° F. or a constant high oven temperature. When both roasts are cooked to the same degree of doneness, those cooked at 250° F. lost in many cases as little as 10 per cent, whereas those cooked at 450° F. constant oven temperature lost as much as 30 per cent. In addition, the meat cooked at low temperature was juicer and more tender. These results which show less shrinkage and greater palatability in meat cooked at low temperature have led the National Live Stock and Meat Board to recommend cooking all meats at a low temperature.

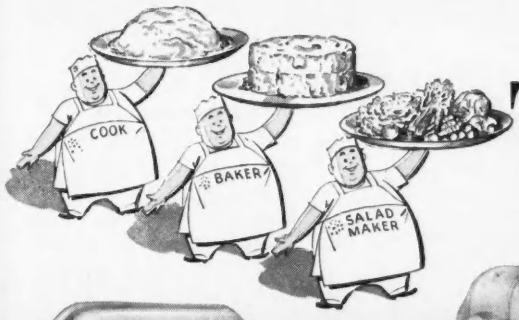
Frozen foods are without question a subject of increasing interest. During the war a large number of studies were conducted and others are now in progress on the freezing of meats and the marketing of frozen meats. The acceptance by consumers will largely determine the extent to which frozen meats are marketed. With frozen meats on the market, directions for their defrosting and cooking will be needed. Little research has been done on handling, defrosting, and cooking frozen meats, and the effects of various methods on the shrinkage, palatability, and nutritive value of the finished product. With this picture in mind, the National Live Stock and Meat Board gave a grant to Iowa State College for a study under the direction of Belle Lowe. For two years she has been working on frozen cuts of beef, pork, lamb, and veal cooked by roasting, broiling, panbroiling, and in water. When the study is complete, we will be able to answer many of the questions which confront those who prepare frozen meat.

We are anxious to learn: how meat should be defrosted—whether during cooking or before; if before cooking, whether it should be defrosted in the refrigerator, at room temperature, in water, wrapped, or unwrapped—and how the method of defrosting will affect cooking time, cooking losses, and palatability of meat.

The work on beef is complete and the results to date indicate the following:

1. In general, palatability was not affected by the time or method of defrosting. No palatability differences were observed for roasts as a result of the type of fuel used.

2. Losses in weight were about the same whether the cut was defrosted during or prior to cooking. The cuts which were frozen at the start of the cooking period usually had greater actual cooking losses. However, in the cuts thawed prior to cooking, the loss during defrosting plus the cooking loss gave a total weight loss about equal to corresponding cuts which were defrosted during cooking. In other words, the final weight loss for frozen meats which have been cooked is approximately the same, regardless of how they are defrosted.



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3. The cooking time was longer for the cuts defrosted during cooking than for those defrosted prior to cooking. As a result the cuts defrosted during cooking required more fuel.

The time required for defrosting was affected to the greatest extent by the defrosting temperature, the dimensions or size of the cut, the mass or total weight, and the thickness and number of layers of wrapping. The defrosting time in all cases was that period required by the meat to reach an interior temperature of 4° C. (39.2° F.).

This time was much shorter during cooking than when a similar cut was defrosted by the other methods, but the time for defrosting during cooking also depended on the cooking temperature; the lower the cooking temperature the longer the defrosting time, if similar cuts of the same size were used. More time was required for defrosting in the refrigerator than during cooking, in water, or at room temperature. For roasts and cuts which were not to be cooked in water, the amount of water used for defrosting was twice the weight of the cut. In these cases, the cuts defrosted in less time than at room temperature.

The time required for defrosting depended on the size of the cut or the distance the heat had to travel to the center of the cut. For example, ½-in. steaks defrosted more rapidly than 1-in. steaks, and 1-in. more rapidly than 2-in. The mass or weight also affected the defrosting time of cuts. For example, a piece of meat 1 in. in thickness and weighing ½ lb. would defrost faster than a similar piece of the same thickness but weighing a lb. or more. Wrapped meat required more time to defrost and the length of time was determined by the thickness of the paper and the number of layers of wrapping.

From these results, it appears that time and convenience are the two important factors to be considered. However, before definite recommendations can be made for defrosting and cooking frozen meats, it is still necessary that a study be conducted on the effect of these methods on nutritive value.

DIETITIANS ATTRACTED TO VETERANS ADMINISTRATION

The recent appointment of 64 dietitians to various positions in the Dietetic Service of the Veterans Administration is evidence that qualified dietitians are interested in and taking advantage of the opportunities for professional growth and service now opening up as a result of the reorganization of the medical service of that agency.

Under a general program of decentralization of all the functions of the Veterans Administration, ordered by General Omar N. Bradley, Administrator of Veterans Affairs, administrative positions have been established in the 13 branches of Central Office which have been opened, in what are, roughly, the Civil Service Districts in the United States.

Veterans Administration Branch Offices are under the supervision of Deputy Administrators. The Department of Medicine and Surgery, of which Dr. Paul R. Hawley is Chief Medical Director, is being administered from the Branch Offices by Branch Medical Directors with the assistance of representatives of the separate divisions of the medical service, including dietetics.

Branch Offices gained three Chiefs and four Assistant Chiefs of the Dietetic Divisions in the recent appointments. Branch Office appointments are nearing completion but it is expected that with the acquisition of new hopsitals more than 200 additional dietitians will be needed by the Veterans Administration during 1946, according to Grace Bulman, Director of the Dietetic Service.

New appointments of Chiefs and Assistant Chiefs of Dietetic Divisions, at Veterans Administration Branch Offices are as follows: Ruth Spencer, Assistant Chief, *Branch No. 1, Boston;* Frances P. Kelley, Chief, *Branch No. 2, New York;* Florence M. O'Brien, Assistant Chief, *Branch No. 3, Philadelphia;* Betty I. Bonnett, Chief, and Grace L. Scholz, Assistant Chief, *Branch No. 9, St. Louis;* Dorothy Conroy, Chief, *Branch No. 11, Seattle;* Mary Moran, Assistant Chief, *Branch No. 13, Denver.* The new appointments to the Veterans Administration hospitals are detailed on p. 694 of this issue.

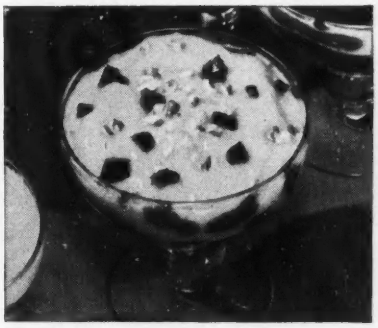
The second meeting of the Veterans Administration's Dietetic Advisory Council was held in Washington on June 25 and 26. S. Margaret Gillam is the new chairman of the Dietetic Advisory Council, replacing Maniza Moore who recently became Chief of the Dietetic Division in the Veterans Administration Branch Office No. 5, Atlanta. Miss Gillam is now the consultant on dietetics for the American Hospital Association, Chicago. Helen McLachlan, Assistant Professor of Dietetics, St. Louis University Hospitals, continued to represent Education; and Dorothea F. Turner, Assistant Professor, Department of Medicine, University of Chicago, to represent Diet Therapy. The Council assisted in the consideration of new developments and plans arising from the acquisition and building of new hospitals as well as the expansion of existing facilities. Enviable plans are being made to encompass the highest quality of dietetic service available.

ADVANCED COURSE IN MESS ADMINISTRATION, BROOKE ARMY MEDICAL CENTER, FORT SAM HOUSTON, TEXAS

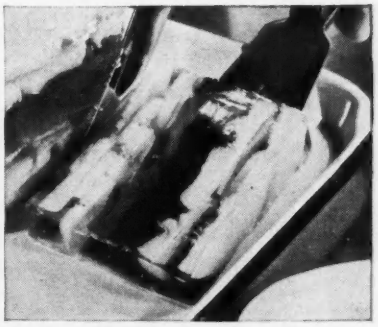
The age-old problem of every housewife, "What shall I have for dinner today?" is usually multiplied a thousand-fold for the Army hospital dietitian who has to prepare "dinner today" for sometimes as many as 3,000.

What beautiful ways to save time, money, and sugar!

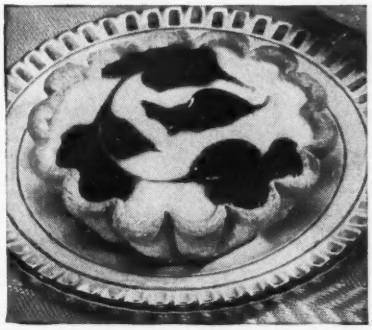
Rainbow Parfait—layers of Strawberry, Lemon, and Lime Jell-O flakes, alternated with whipped cream or Jell-O Vanilla Pudding. Each flavor keeps its full richness, thanks to Jell-O's "locked-in" process.



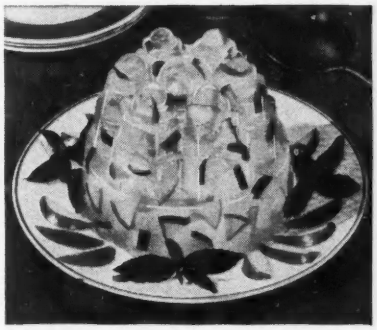
Date-Nut Butterscotch Pudding—crunchy nuts and chopped dates in rich Jell-O Butterscotch Pudding. This Jell-O favorite has the real brown-sugar taste, yet takes none of *your* sugar to make!



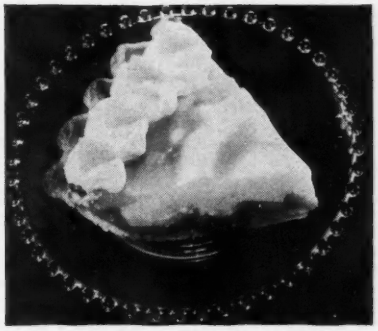
Gold-and-White—one of the self-layering Jell-O molds. Just add bananas and peaches to Orange Jell-O, and presto—peaches sink to bottom, bananas stay on top! Jell-O sets fast, too!



Marble Tart Filling—made by alternating spoonfuls of creamy Vanilla Pudding with rich Chocolate Pudding. *All* Jell-O Puddings have an old-fashioned taste—cost about two cents a portion (including the milk).



New Manhattan Salad—a tempting combination of Lemon Jell-O, apples, pecans, and celery. Jell-O is a good—and inexpensive—way to stretch salad or leftover ingredients.



Lemon Pie, home-style. Get that tangy, homemade flavor the easy way—from Jell-O Lemon Pie Filling, made with the juice of *real lemons*. Costs so little, makes such delicious pies, puddings, and sponge desserts.

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"You cannot take a recipe for five, multiply it by 100 and get servings for 500," according to Captain Mary Behlen, teaching dietitian at Brooke General Hospital, Brooke Army Medical Center.

For that reason one of the classes for the Army dietitians, who attended the mess administration course at Brooke Army Medical Center, included instruction in standardization of receipes.

How do Army cooks get their recipes? Just by reading it off a printed sheet . . . but it is a long process before that recipe gets to the sheet. Dietitians must first measure the ingredients pound by pound and ounce by ounce in amounts for 100 to 500 servings, depending on the number of troops to be fed.

After the recipe has been formulated, it is tried in the mess halls for three times. If then it is judged satisfactory, it is sent to the various messes to be placed on file for use when the recipe appears on the menu.

However, the life of an Army dietitian is no bed of recipes.

Graduate dietitians who attended the advance instruction in mess administration at Brooke Army Medical Center, also took a course in daily computations of rations as the system is used at the Center. In other words, it is plain, old-fashioned bookkeeping developed to a fine point.

"In order to spend the government's money wisely, dietitians must know from day to day exactly how many meals must be served and how much food is on hand," according to Captain Miriam Perry, teaching dietitian in charge of the course. "This course teaches dietitians exactly how to arrive at this daily gain and loss. Not only must the dietitian know her vitamins and calories but also her debits and credits."

The system, as used at Brooke, lists figures for the entire Center, breaks down the amounts for each individual mess and presents a daily inventory of stock in each mess hall and in the central store rooms.

Here studying the daily computation of rations are, left to right, Capt. Katharine Manchester of Washington, D. C., assigned to Office of Surgeon General, Washington, D. C.; Lt. Dorothy H. Loudon of Dickinson, N. D., Brooke General Hospital, unassigned; Capt. Margaret C. O'Connor of Jessup, Pa., assigned to Tilton General Hospital, Fort Dix, N. J.

The class also learned how to make purchases of large amounts of food for the mess halls from the post commissary in a way that would not interfere with civilian food supply in the area. The course was taught by Mrs. Mary K. Bearmen, 334 Cincinnati Street, San Antonio, civilian employee in the mess department at Brooke.

The first class in advanced instruction in mess administration for dietitians at Brooke Army Medical Center was graduated on June 28. The course, which covered every phase of mess administration for dietitians, was the first of its kind for graduate dietitians in the Army. A new class will start the third Monday of every month for a period of nine additional months.

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Maintenance cleaning is simplified by Wyandotte F-100*—the *all-soluble* product for washing paint and cleaning floors, especially red tile. You'll like the way it dissolves readily and completely in water—then rinses freely, leaving no film or white streaks.

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Book Reviews

First Steps in Cooking. By Katharine Shepard, R.N. New York: The Macmillan Company, 1946. Cloth. Pp. 174. Price $2.75.

According to the Preface, the material in this book has been used in teaching cooking to beginning students at the Household Nursing Association, Inc., and it is now being offered to the public in the hope that it may be useful to teachers giving a basic course in cooking; to the young bride; and to the housewife who has been thrust into the kitchen by the scarcity of cooks. The latter statement seems to be the closest the author comes to present day shortages. Recipes are sprinkled liberally with recommendations for the use of butter, sugar, and wheat flour; and there are no substitutions or equivalents suggested for these items.

As the title implies—this is an elementary cook book. Kitchen equipment, utensils, and appliances are described together with directions for their use and care. Definitions of cooking terms are given, such as "beating," "braising," "broiling," and "boiling water." However, the same attention is not given to nutritional terms. "Calcium," "phosphorus," "protein," "vitamins," and "minerals," are left up to the reader. While no definition is given of the term "easily digested," pork, French fried potatoes, and mince pie are said to be in this category. If the author intends that "easily digested" should refer to the completeness of digestion, misinterpretations are inevitable.

Each procedure involved in preparing a recipe is outlined step by step. Although the recipes are few and simple, they are divided into the usual categories—beverages, cereals and gruels, soups, cheese, fish, poultry, meat, pastries, and left-overs. While the book is purportedly for student groups, no attempt has been made to organize the material, recipes for cakes for example, into basic recipes with indications for suitable adaptations.

Also, if the recipes are for the use of students who expect to give instruction in the home, or for the homemaker who needs to consider the cost as well as the acceptability, there is a notable lack of attention to economic factors.

Food and Nutrition. Prepared under direction of Division of Elementary Education, State Department of Education in Cooperation with Bureau of Maternal and Child Health, State Department of Public Health. Distributed by California State Department of Education, Sacramento, 1945. Paper. Pp. 160. No price stated.

The California State Departments of Education and of Public Health are to be congratulated for uniting their efforts in giving their teachers such an attractive handbook of food and nutrition. Joint publications of this type are highly desirable as a means of having teachers receive uniform, carefully presented facts for use in their classrooms. Too often different agencies within the same state have prepared food and nutrition literature independently of each other containing conflicting or contradictory facts.

The size of the manual, the paper, print and profusion of excellent photographs make this book very readable and interesting to teachers and pupils.

The book is divided into three parts. Part I, "Man's Quest for Food" outlines the period from primitive times to the National Nutrition Conference in Washington in 1941. This section gives a comprehensive interpretation of the local food problems of primitive man and the sharp contrast with the present international problems of food and nutrition.

In Part II a detailed description entitled "Basic Considerations Regarding Nutrition" is presented. In this section the use of more outline form for giving the functions of various dietary essentials might make it easier for the teacher to use. Food sources of each essential are arranged in column form using the tables in "Food and Life," *Yearbook of Agriculture, 1939*. While these tables divide food into excellent and good sources, they are in no way related to the best sources of the various minerals and vitamins. Such a summary following the tables would give the teacher more practical teaching points directly related to the meals school children eat. For example, on page 40, in the table, "Food Sources of Thiamine," no mention is made of enriched or whole grain bread. Because of its frequent and regular use in meals bread makes a large contribution to the school child's thiamine intake.

Part III contains an excellent outline entitled "Areas of Experience." The curriculum departments of 4 rural counties contributed this section.

The Appendix includes a table entitled "Caloric Value of Average Servings of Food," and a section entitled, "Planning for Food Service," which should be of practical value. There are also 22 pages of detailed bibliography.

On the whole this book should be a splendid aid to the classroom teacher in interpreting the increasingly important topic of food and nutrition.—*Anna dePlanter Bowes, Chief, Division of Nutrition, Pennsylvania Department of Health.*

How to Be a Success in the Restaurant Business. By Madeline Gray and Vass De Lo Padua. New York: Greenbert, 1946. Cloth Pp. 262. Price $3.50

This book is written in popular style by Madeline Gray, a feature writer, and Vass De Lo Padua, once an associate of Escoffier and a long-time restaurant operator. Varying degrees of emphasis are made on the recognized practical fundamentals for the operation of large scale food management.

Profit making techniques are emphasized, especially the financial budgeting, food purchasing, the merchandising through the menu, direct guest service, dining room decoration, and window dressing.

Without a doubt the most controversial chapter in the whole book is the one on "Tricks in Big Time Cookery" particularly the discussion on blanching and the cooking of vegetables. In the suggested basic patterns for menu making is the glaring omission of typical American salads and sandwiches. The publication is intended for owners and managers of large restaurants, and their executive chefs and kitchen stewards.—*Adeline Wood, Food Consultant.*

BY Mary I. Barber OF KELLOGG'S

6 FAVORITE RECIPES—AND A WORD ABOUT THE NEW FLOUR!

Director, Kellogg's Home Economics Department Battle Creek, Michigan

THERE is never a dull moment in the life of a dietitian. If anyone not working in the field questions this, I, personally, invite the doubter to leaf through a few issues of this magazine.

She will find article after article dealing with current food problems—the effect of quick-freezing on vitamins, nutritive values of foods prepared in large quantities, relief feeding projects. And now the President's Famine Emergency Committee Recommendations and the new 80% flour!

We have received so many questions in our own mail about the use of the new flour in our recipes that it seems a good idea to answer one of them on this page.

Here is the question asked most often:

Question: *Should adjustments for the new flour be made in Kellogg recipes?*

Answer: *No. The flour works all right. Use our regular Kellogg recipes without change.*

COOKING WITH READY-TO-EAT CEREALS

Of course, ready-to-eat cereals are eaten primarily as a cereal with milk and perhaps fruit. However, they are growing in importance as recipe ingredients.

We in the Kellogg Home Economics Department recently selected six favorite recipes to illustrate the use of our cereals in cooking. We have put these recipes in a folder which we hope will be especially useful to you.

Measurements are for 100 servings. Two recipes are for drop cookies; two for simple, sugarless candies (one may be used as light dessert); one is meat-stretching; and one is for steamed brown bread.

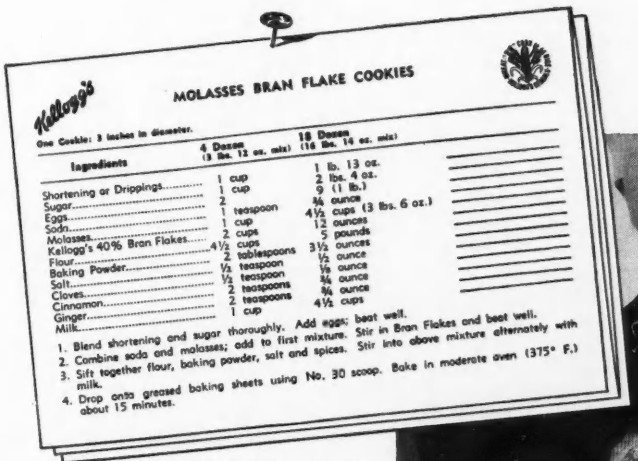
The recipe for Molasses Drop Cookies made with Bran Flakes is given here. They are a spice cooky, inexpensive but good-tasting—typical of the recipes we have chosen.

REMEMBER THESE VALUES

If an equal measure of Bran Flakes is eaten in cookies, muffins, bread, or candy, the laxative value is the same as if served as a cereal. Remember, too, that all Kellogg cereals either are made from whole grain or are restored to whole-grain values of thiamine, niacin, and iron.

Mary I. Barber, DIRECTOR
HOME ECONOMICS DEPARTMENT

Kellogg's



Kellogg's

MOLASSES BRAN FLAKE COOKIES

One Cookie: 3 inches in diameter.

Ingredients	4 Dozen (3 lbs. 12 oz. mix)	18 Dozen (16 lbs. 14 oz. mix)
Shortening or Drippings	1 cup	1 lb. 13 oz.
Sugar	1 cup	2 lbs. 4 oz.
Eggs	2	9 (1 lb.)
Soda	1 teaspoon	¾ ounce
Molasses	1 cup	4½ cups (3 lbs. 6 oz.)
Kellogg's 40% Bran Flakes	2 cups	12 ounces
Flour	4½ cups	5 pounds
Baking Powder	2 tablespoons	3½ ounces
Salt	½ teaspoon	½ ounce
Cloves	½ teaspoon	⅛ ounce
Cinnamon	2 teaspoons	¾ ounce
Ginger	2 teaspoons	¾ ounce
Milk	1 cup	4½ cups

1. Blend shortening and sugar thoroughly. Add eggs; beat well.
2. Combine soda and molasses; add to first mixture. Stir in Bran Flakes and beat well.
3. Sift together flour, baking powder, salt and spices. Stir into above mixture alternately with milk.
4. Drop onto greased baking sheets using No. 30 scoop. Bake in moderate oven (375° F.) about 15 minutes.

Actual size of folder—6″ x 4″.

SEND FOR RECIPES

Get free, file-size folder of six favorite large-quantity recipes using Kellogg cereals. Write to Home Economics Department, Kellogg Company, Battle Creek, Michigan.

KELLOGG'S CORN FLAKES • RICE KRISPIES • PEP
RAISIN BRAN FLAKES • 40% BRAN FLAKES
ALL-BRAN • SHREDDED WHEAT • KRUMBLES

Ice Cream Diets. By Marion White. New York: M. S. Mill Co., Inc., 1946. Pp. 58. Price $1.25.

Using ice cream twice daily, while dieting to lose weight, is undoubtedly pleasant to contemplate. Moreover, it is conceivable that such a plan would be commendable in certain low caloric diets—and with all due regard to the requirements for nutritional adequacy. It is only to be regretted that such was not the case in this book—in spite of the fact that mention is made of the "seven basic foods."

Menus are outlined for a "Ten-day Wonder Diet," "Diet at the Soda Fountain" and "Diet for the Social Butterfly." In the "Ten-day Wonder Diet" menus range between 600 and 800 calories. "It isn't sensible of course," the author admits, "but neither is going without rubbers or refusing to wear glasses;" and with this, she proceeds to outline menus containing approximately 15 gm. of protein daily with a correspondingly gross deficiency in minerals and vitamins due to the insufficiency of milk, eggs, or meat in the menus. A further disregard for nutritional adequacies is evident in recommendations for the use of mineral oil salad dressing. Numerous authorities have repeatedly stressed the inadvisability of using mineral oil with foods due to the interference with absorption and loss of fat soluble nutrients from the digestive tract.

For the "Diet at the Soda Fountain" the same simple rule of counting calories is again used—with utter disregard for the protein, mineral, and vitamin intake. As before, no milk is recommended, outside of the small amount in the servings of ice cream.

The fallacy of relying on the old fashioned method of counting calories without regard for other nutrients, is pointedly demonstrated in this book in the resultant inadequacies in protein, minerals, and vitamins.

A final chapter has been added for the thin woman. One quart of ice cream daily is recommended both between meals and with meals, including breakfast. "The person who has never topped off bacon and eggs with a dish of ice cream has never enjoyed a complete breakfast."

Again, emphasis has been placed on calorie counting, in spite of the fact that histories of dietary intake on thin people have repeatedly revealed that inadequacies in calories alone are rare, while multiple deficiencies are the rule.

Future Outlook for Canned and Frozen Foods

Frozen fruits and vegetables now constitute only about 1.5 per cent (farm-weight basis) of the total consumption of these products in fresh and processed form. In terms of percentage increases the expansion during the next few years will undoubtedly be enormous, but it is possible that a considerable period, say 10 years, will be required for frozen foods to take over any sizable proportion of the total trade.

As compared with the fresh product, frozen fruits and vegetables have several definite advantages, all well known to dietitians. Compared with canned fruits and vegetables, the frozen products also seem to have an advantage in practically every category, except relative cost or price and ease in preparation, in which they are on equal footing. There is reason to expect, however, that the cost advantage enjoyed by canned foods today will gradually diminish as the volume of frozen foods increases.

Frozen foods will draw from both fresh and canned volume, in addition to increasing overall consumption. The fresh fruit and vegetable and canning industries will not take this new competition lying down. Already the trend of thinking in fresh fruit and vegetable circles is definitely toward pre-packaging which would give to these products almost the same consumer advantages in buying, handling, and preparation which frozen foods now have.

In the minds of some observers, canning seems to have been relegated to the future role of preserving off-quality products not suitable for freezing or shipment as fresh produce, for sale to low-income consumers to whom price is a paramount consideration. Although that appears to be a very extreme point of view, the canning industry seems almost certain to have a materially reduced proportion of the total volume of fruits and vegetables eventually. This will be partly offset by increases in population and by the advent of new canned items such as canned hams and bacon, however. Moreover, it is likely that a considerable part of the eventual volume of frozen fruits and vegetables will be processed by canning firms. Much of the equipment necessary for processing frozen foods is identical with that used in canning, and methods of procuring raw materials are very similar. The possible introduction of pre-packaging fresh fruits and vegetables at the grower end of the marketing system plus the growth of frozen foods may result eventually in several-purpose fruit and vegetable processing plants, which will be in a position to divert raw materials into fresh, frozen, or canned channels as dictated by shifting conditions of supply and demand.—*F. L. Thomsen, Division of Marketing and Transportation Research, Bureau of Agricultural Economics, in an address to the New England Conference on Organization and Management sponsored by the Massachusetts Dietetic Association.*

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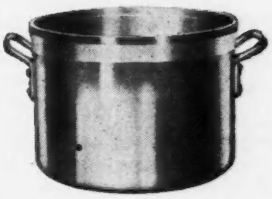


These heavy duty stock pots have established a well-earned reputation for durability. Capacities from 4½ to 60 quarts. Think how long the new stock pots, made from this super hard aluminum alloy, will last!

Current Literature

Contributed by Janet Engebretsen and Janette C. Carlsen, Dietary Department, Johns Hopkins Hospital; Quindara Oliver Dodge, Women's Educational and Industrial Union, Boston; Mrs. Norma Rubovits, Bobs Roberts Hospital, University of Chicago Clinics; and Mrs. Margaret Shatswell Price, Winter Park, Florida.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

Vol. 71, March 1946

*Megaloblastic anemia in infancy: A common syndrome responding specifically to folic acid therapy. W. W. Zuelzer and F. N. Ogden.—p. 211.

Effect of war-imposed dietary limitations on growth of Paris school children. M. Laporte.—p. 244.

*Pernicious anemia in childhood. Case report. J. C. Peterson and S. C. Dunn.—p. 252.

Vol. 71, April 1946

*Gastric phase of milk digestion in childhood: A study of the fasting secretions and of the physiologic responses to "hard curd" (pasteurized) and "soft curd" (homogenized) milks. I. J. Wolman.—p. 394.

Megaloblastic Anemia in Infancy. Twenty-five infants with a macrocytic anemia were studied. A characteristic dysplasia of the marrow was encountered in these patients. The specific response to liver extract, folic acid concentrates, and pure folic acid was considered to constitute criteria for the recognition of a distinct syndrome. The designation "megaloblastic anemia" is suggested for this condition because macrocytosis as determined by mean corpuscular constants is inadequate for the hematologic diagnosis of this anemia. Megaloblastic transformation of the bone marrow is a constant occurrence. The characteristics of the circulating blood are a normochromic and usually macrocytic anemia, leukopenia, neutropenia and thrombopenia, similar to classic Addisonian pernicious anemia. However, these characteristics of the circulating blood are not constant. Supplementary study of the bone marrow by means of smears is a reliable method of diagnosis and can be easily and safely done. The pathogenesis of the syndrome is discussed, and the anemia, leukopenia and thrombopenia are interpreted to be the results of a disturbance of regeneration affecting the marrow cells similar to the disturbance of marrow function in pernicious anemia. Folic acid is identical with or contains a hemopoietic factor which has a specific effect on megaloblastic anemia. This effect is indistinguishable from that produced by purified commercial liver extract. Megaloblastic anemia of infants is defined as a deficiency state in regard to the factor—or factors—contained in these substances. In contrast to pernicious anemia, the deficiency is not a permanent one. In an analysis of etiologic conditions, infections and nutritional deficiencies appear significant, while age, race and possibly prematurity and maternal anemia are predisposing factors.

Pernicious Anemia. The literature concerning anemia in childhood of a macrocytic nature in which there is a response to liver therapy has been reviewed. The cases reported have been analyzed and have been separated into two groups, those having a complete picture of pernicious anemia and those having the hematologic picture of pernicious anemia but not requiring continual treatment to maintain a state of remission and presumably not due to a deficiency of the intrinsic factor. A case study of a five year old child for whom the laboratory observations and the clinical course satisfy stringent criteria for the diagnosis of pernicious anemia is presented. This makes the third case reported of pernicious anemia occurring in childhood and the second occurring in infancy.

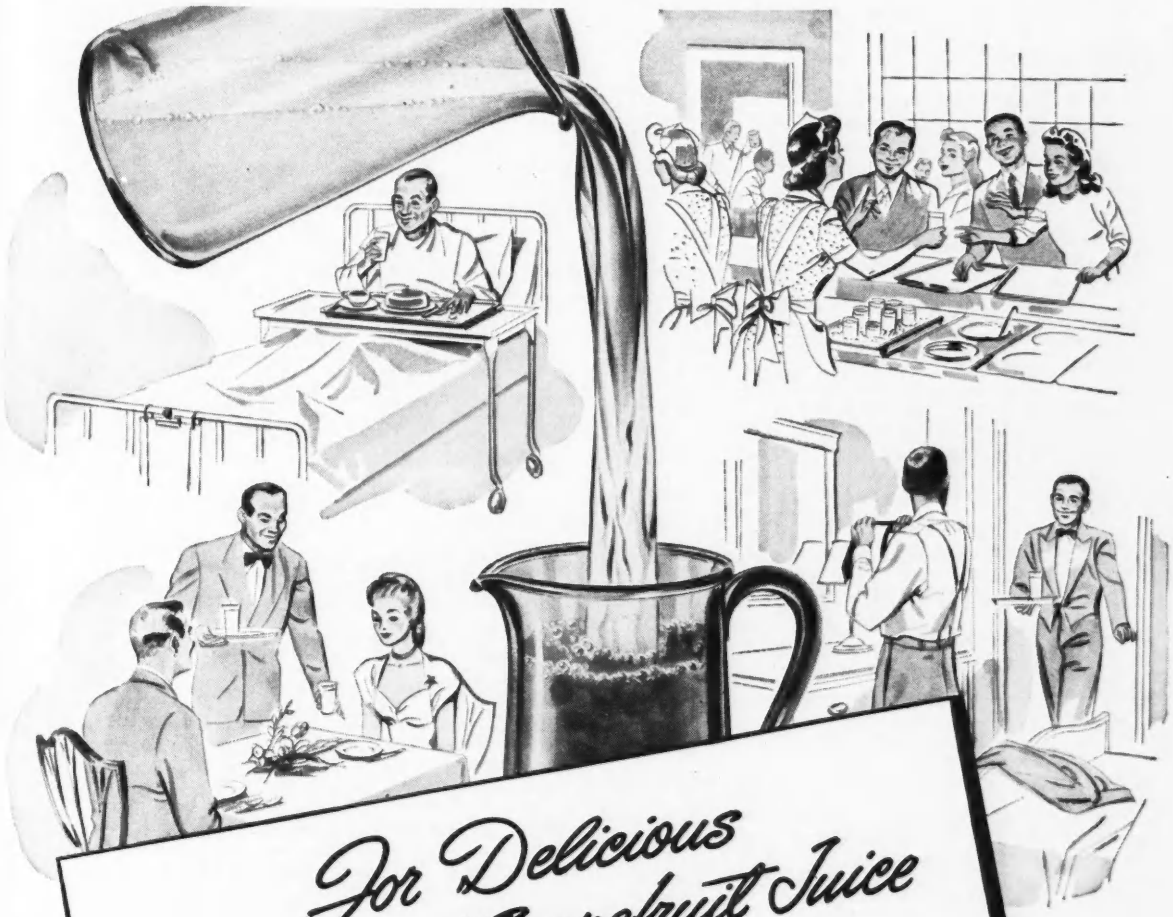
Milk Digestion. The investigations reported describe an attempt to determine what occurs inside the stomach of the average child on drinking cow's milk. Answers have been sought to four questions: 1. When a child drinks a glass of milk, what is the makeup of the fasting gastric secretions which receive the milk? 2. What measurable changes take place in the milk during its stay in the stomach? 3. To what extent does the child's stomach digest the proteins of cow's milk? 4. Do the gastric responses to a modified soft curd milk, such as homogenized pasteurized milk, differ from those of the more hard curd plain pasteurized milk? Detailed studies indicate that: 1. The fasting secretions when the child is at rest exhibit wide normal ranges in volume, rate of formation, pH, pepsin content and various "acidity" measurements. Pepsin and hydroehloric acid seem to be secreted in more or less parallel fashion. Buffer capacity of a glass of cow's milk is so great that fasting specimens rich in free hydrochloric acid will become almost completely neutralized. 2. During its stay in the stomach cow's milk becomes coagulated, undergoes a moderate fall in pH and is discharged intermittently in fractional amounts from the gastric reservoir. Observed coagulation times ranged from 8 to 52 min., with a mean of 19.7 min. Emptying times ranged from 25 to 170 min., with a mean of 118.5 min. 3. In 72 "matched pairs" no measurable differences could be demonstrated in the intragastric responses to "soft curd" homogenized pasteurized milk as compared with the more "hard curd" plain pasteurized milk. 4. Only minimal proteolysis of milk, apart from coagulation, takes place in the stomach. This conclusion is based on three lines of evidence encountered in aspiration experiments: a. The pH conditions are far from optimal for enzymatic activity of pepsin. b. Much of the milk remains but a relatively short time. c. The content of alkaline-neutralizing, or intermediate buffer substances exhibits negligible increase. 5. The intestinal tract beyond the pylorus—and not the stomach—is the major organ for chemical breakdown of milk. In children of school age the irregularities in comparative digestability of large firm curds versus small soft curds do not become manifest within the gastric segment of the tract.

AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY

Vol. 51, May 1946

*Excretion of penicillin in human milk following parturition. H. J. Grune, B. Burkhart and G. L. Hobby.—p. 732.

Penicillin in Human Milk. Penicillin was administered intramuscularly to eleven normal patients. Three received 100,000 units every two hours for three injections, seven received a single injection of 100,000 units, and one received 50,000 units every three hours for a 24-hour period. All



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showed significantly high blood levels one to two hours after the last injection of penicillin. Eight of the 11 patients showed penicillin in the breast milk.

AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 146, April 1946

*The tolerance of man to cold as affected by dietary modifications: proteins versus carbohydrates, and the effect of variable protective clothing. R. W. Keeton, E. H. Lambert, N. Glickman, H. H. Mitchell, J. H. Last, and M. K. Fahnestock.—p. 66.

*The tolerance of man to cold as affected by dietary modifications; carbohydrate versus fat and the effect of the frequency of meals. H. H. Mitchell. N. Glickman, E. H. Lambert, R. W. Keeton, M. K. Fahnestock.—p. 84,

Diet and Tolerance of Man to Cold. The purpose of this experiment was to study possible relationships between the nature of the food supply and tolerance to cold. Evidence secured in these two investigations justified the conclusion that dietary modifications may exert considerable and favorable effects upon the ability of man to withstand exposure to intense cold. High-carbohydrate, and particularly high-fat, foods are to be preferred to high-protein foods. Small meals spaced at short intervals of time are more favorable than large meals spaced at the usual four to six hour intervals.

ANNALS OF INTERNAL MEDICINE

Vol. 24, April 1946

*Case report. Excessive self-administered dosages of thyroid extract. D. Goldfinger.—p. 701.

Vol. 24, May 1946

*Peptic ulcer in identical twins. H. H. Riecker.—p. 877.

Thyroid Extract Administered in Large Doses. A most unusual case report is presented telling of massive doses of thyroid consumed for over a year. An obese woman rejected a dietary plan for weight reduction as she knew it would not work. Later, her physician put her on a thyroid regime which resulted in a 30-lb. weight loss. The patient gradually became very nervous and lost more than a desirable amount of weight. She was hospitalized and various tests given; her blood pressure and pulse rate were abnormal. It was finally discovered that she had concealed bottles of thyroid and was taking over 100 grains daily, and had been for about a year. She died during a cardiac attack as a direct result of the overdose of thyroid.

Peptic Ulcers in Twins. In support of the hereditary nature of peptic ulcer, a case of twin girls is presented as further evidence. The term "peptic ulcer" is used in this review as meaning either gastric or duodenal. Twenty year old twin girls reported similar symptoms and both were diagnosed as ulcer patients. The girls had similar mental and physical traits and had lived similar lives; their father had had peptic ulcers and had undergone a gastric resection. The question is raised: are ulcers inherited or is it the personality associated with ulcers which predisposes humans to this malady? It is concluded that peptic ulcer is basically not caused by hormonal, environmental, or nutritional factors; but the emotional factor appears to be the one most closely associated with ulcer.

ARCHIVA MEDICA BELGICA

Vol 1, March 1946

*General review of the work in pharmacodynamics and therapeutics accomplished in the Belgian Universities (May 1940 to September 1944). Jean Reuse.—p. 65.

"In this general review" says the author, "we shall try to give a glimpse of the experiments . . . accomplished in Belgium during the years of occupation. Conditions of work have differed greatly depending on the university in question, and the scientific production of the laboratories reflects their respective situations." Under 16 headings the work done in various fields of medicine is surveyed. Material of particular interest to dietitians is found under "Insulin-Glucemia" p. 71, and under "Digestive Apparatus Contractile and Secretory Functions of the Stomach" p.84. In the first reference it is reported that De Duve and his associates worked on the relation of the amount of glucemia and the capacity for glucose assimilation in an animal receiving insulin. It was definitely shown that hepatic action of insulin exists and is important. In the second reference it is reported that La Barre found that gastric contractions due to hunger are not inhibited but are stimulated by the administration of magnesium sulphate. Mild and moderate doses of sodium barbital abolished the hunger contraction, while only actually hypnotic doses affected the post insulin gastric hypermotility. Sodium barbital administered daily for therapeutic purposes did not noticeably interfere with digestive phenomena.

ARCHIVES OF INTERNAL MEDICINE

Vol. 77, March 1946

*Danger of intravenous injection of protein solutions after sudden loss of renal tissue. T. Addis, E. Barrett, W. Lew, L. J. Poo, and D. W. Yuen.—p. 254.

Renal Tissue Loss. Because the kidney does not get enough blood after sudden shock, there may be loss of renal tissue. Some of the nephrons may merely be inactive for a time; others may be permanently destroyed. Since most of the work of the kidney consists in reabsorption of water from a concentrated solution of urea, rest is possible only when a diet low in urea producing elements is given with forced fluids. Experiments on rats have shown that when 75% of the kidney is removed, the rats will survive on a protein-free diet but die if high protein is fed. The work of the human kidney is increased when whole blood or plasma transfusions are given; the authors wish to point out this fact and suggest a carbohydrate substitute immediately after shock.

BRITISH MEDICAL JOURNAL

No. 4452, May 4, 1946

*Nutrition in Vienna in November, 1945. M. Pyke.—p. 677.

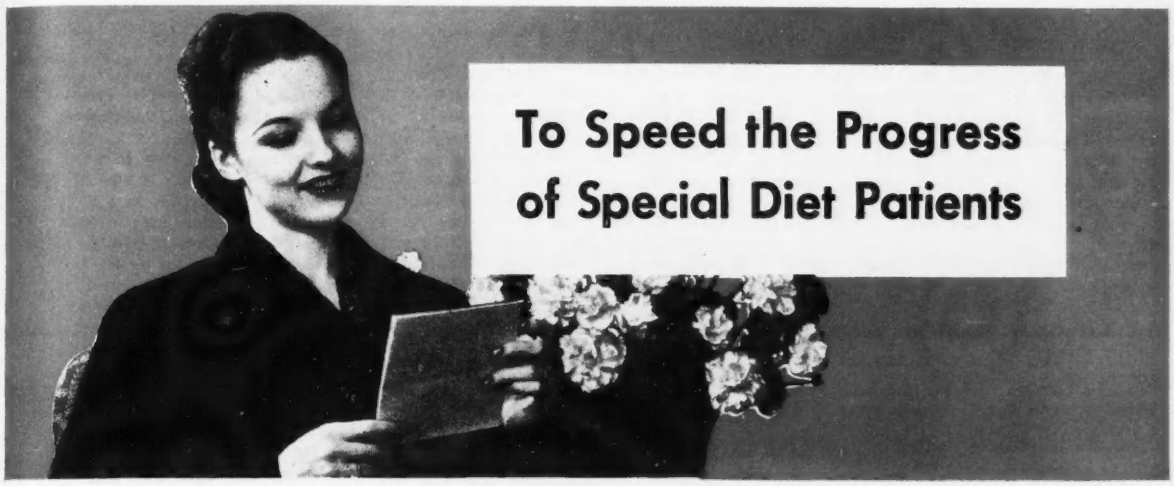
Nutrition in Vienna. Although there was a substantial improvement in the supply of food in Vienna between September and November, 1945, the full nutritional requirements were not provided. A dietary survey carried out in November showed the food eaten by normal consumers provided about 1,700 calories daily; factory workers averaged 2,200 calories; while children 10 years old averaged about 2,000 calories. All diets were deficient in calcium, vitamin A, and riboflavin. There was a shortage of vitamin C for the children.

BULLETIN OF THE JOHNS HOPKINS HOSPITAL

Vol. 78, May 1946

*Studies on convalescence. J. E. Howard, R. S. Bigham, H. Eisenberg, D. Wagner, E. Bailey.—p. 282.

Nitrogen Balance. Diet was a most important factor in this nitrogen and mineral balance study on two conscientious objectors who volunteered to undergo tests. Complete samples of diets were analyzed. Dietary changes were planned so that all changes rose or fell in proportion (for



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example, if the protein was increased 25%, the fat and carbohydrate were also increased 25%). The two volunteers were on periods of acute starvation and graduated, increased feedings, followed by graduated reduced feedings to a brief period of starvation. In periods of decrease, nitrogen, potassium, and phosphorus were lost in the same proportion as in muscle protoplasm. When diets were increased, potassium was retained in a greater proportion than nitrogen. Great losses in sodium and chloride occurred in starvation and increase was slow even when diet was increased.

THE CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 54, May, 1946

*Calcified gall bladder. A. Jutras, M. Longtin.—p. 434.
*Fibrocystic disease of the pancreas in infants. G. B. Rosenfeld, W. J. Baxter.—p. 438.
*Toxaemia of pregnancy. S. Gold.—p. 456.

Calcified Gall Bladder. A calcified gall bladder acquires unusual properties of toughness, color, and sound effect to percussion. Pathogenesis may be considered under two theories: mechanical and infectious. The mechanical theory supposes a compression; hence, slowing of blood circulation in the walls, and degeneration due to calcium sedimentation. The infectious theory, which is more widely accepted, maintains that calcification is the end result of chronic inflammation which obstructs the lymph vessels, interferes with the elimination of suppurative products, and finally causes a retention of these products along with the calcium.

Disease of the Pancreas in Infants. If fibrocystic disease of the pancreas is diagnosed early, infants frequently respond well to treatment. There is an underlying cystic fibrosis of the pancreas which affects enzymic activity but not the islets of Langerhans. The result is an output of pancreatic juice which is low or absent in enzymic ferment, and a stool that has an increased percentage of total fat. There is a loss of fat soluble vitamins, especially vitamins A and D in the stool. The resulting avitaminosis A causes lowered resistance to infection in the respiratory tract which is unresponsive to ordinary treatment. The treatment is five-fold. The initial diet is a high protein formula with easily digestible carbohydrates. The daily calorie intake must be 30 to 50% above the amount given to normal infants of the same weight. This compensates for loss of food which is undigested or unabsorbed. Fat may be introduced into the diet much earlier than in coeliac disease. Pancreatin is given in sufficient amounts to compensate for the deficiency in the pancreas. Oleum percomorph given orally gives better results than the parenteral methods. Prostigmin appears to be beneficial in increasing intestinal tone and thus aiding absorption. Penicillin is given since these infants are usually quite ill due to pulmonary infection.

Toxaemia of Pregnancy. This article presents a classification of the toxaemias of pregnancy as suggested by The American Committee on Maternal Welfare. The etiology of edema in pregnancy is reviewed with the conclusion that the production of edema is a result of retention of sodium. The main features in the treatment of pre-eclampsia and eclampsia are bed rest; adequate sedation; increased water elimination by purges; restriction of salt and sodium in the diet; and the use of hypertonic glucose solutions in water intravenously.

CLINICAL PROCEEDINGS

Vol. 5, March 1946

*The effect on rats of a diet with a high content of protein derived from food yeast. J. T. Irving and H. M. Schwartz.—p. 14.
*Recent advances in nutrition. J. F. Brock.—p. 20.

Food Yeast Protein. This is a report of an experiment which was undertaken to test the effect on rats of diets in which a substantial proportion of the protein was derived from food yeast. Results indicate that rats can live and grow perfectly normally for 150 days on a diet in which 48% of the protein is derived from food yeast.

Recent Advances in Nutrition. This article is a commentary upon recent trends in nutritional science, especially as they affect the clinician. Among the more important advances in nutritional science during the last few years, in the opinion of the author, have been: 1. A study of the methods of saving life in extreme starvation. 2. An increasing recognition that too much attention has been focused on vitamins and too little upon amino acids. 3. Increasing knowledge of the fundamental role of the liver in nutrition arising from the discovery that necrosis of the liver can be produced by dietary deficiency. 4. The recognition that the biosynthesis of vitamins by micro-organisms in the human gut can be of great importance in adaptation to defective diets. Each of the above topics is discussed. The article is extensively documented.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 131, June 1, 1946

Gout: still a forgotten disease. J. P. McCracken, P. S. Owen, and J. H. Pratt.—p. 367.
*Health resort therapy in gastro-intestinal disorders. (Special article) S. Weiss.—p. 394.
*Enriched 80 per cent extraction flour. Council on Foods and Nutrition.—p. 399.
*Thiamin and estrogen in uterine cancer and menorrhagia. Editorial.—p. 401.

Vol. 131, June 22, 1946

*Vitamin deficiencies: stigmas, symptoms and therapy. Council on Foods and Nutrition.—p. 666.

Health Resort Therapy. It is the opinion of the author that American health resorts, properly equipped and efficiently managed, with competent medical supervision of spa therapy, have an important place in the management of digestive disorders. In general, the indications for spa therapy in these disorders may be classed as: 1. gastric neuroses, 2. subacute and chronic gastritis, 3. intestinal atony, 4. chronic colitis, 5. gall-bladder disease, 6. chronic hepatitis, 7. post-operative recurrence of digestive disturbances. Part of the merit in spa therapy lies in environmental and occupational change for the patient. The pharmacologic effects of mineral waters are antacid and buffering, mucosolvent, hydragogue, cholagogue, diuretic and remineralizing. Spa therapy must be considered as an adjunct to, and not a substitute for, individualized management of digestive disorders.

Enriched 80% Extraction Flour. The Council on Foods and Nutrition has endorsed the decision of the millers and bakers of this country to enrich 80% extraction flour, and bread made with such flour. Eighty % extraction flour has some small nutritional advantages over flours of lesser extraction particularly with respect to certain protein qualities. The serious disadvantage is the fact that to date the iron, riboflavin, thiamin, and niacin values of 80% extraction flour consistently fall far short of the levels present in enriched flours. Unenriched 80% extraction flours carry half or less than half as much thiamin, niacin, and iron and less than 20% as much riboflavin as enriched flour. The 80% extraction flour if enriched, is nutritionally superior to the flour it replaces.

Thiamin in Uterine Cancer. Estrogens have been demonstrated to produce enormous proliferation of the epithelium of the female genital tract. Chemical similarity exists between certain coal tar derivative carcinogenic

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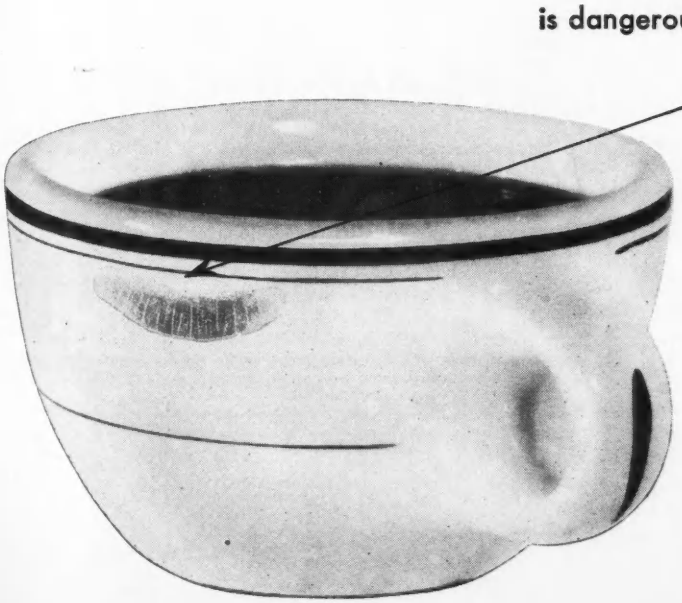

substances and certain of the sex hormones, especially estrogen. Experimentally in female rats it has been found that estrogen inactivation in the liver fails to occur if the animals have a "B complex" deficiency. Clinically, large doses of the vitamin B complex and liver extract may control functional menorrhagia and metrorrhagia. Further, in two series of cases of proved uterine cancer, studies indicate that a relationship exists between B complex intake and the rise and fall of estrogen levels. In one of these series, a preponderant number gave evidence of abnormally high endogenous estrogenic activity; in the other series, similar findings were correlated with a low thiamin excretion. In view of these observations the nutritional status of gynecologic patients should be carefully evaluated, especially with reference to thiamin and other components of the vitamin B complex. Further studies and correlations will be of value to determine whether nutritional deficiency may be a primary factor in production of uterine cancer and if so, whether recognition of such deficiency may permit early detection or prevention of cancer.

Vitamin Deficiencies. The Council on Foods and Nutrition presents an outline of the changes in the body resulting from vitamin deficiencies, and their effective treatment. The material it contains is a consensus of current views. As stated in the introductory comment, present knowledge does not justify the characterization of many of these changes as conclusive or pathognomonic, particularly when observed as an isolated finding. Rather the abnormal finding should be considered as suggestive of the presence of a deficiency the existence of which should be corroborated by the findings of other changes and a history of dietary inadequacy. The Council wishes emphasis placed on the view that vitamins must never be relied on as a substitute for the regular consumption of an adequate diet.

JOURNAL OF THE CANADIAN DIETETIC ASSOCIATION

Vol. 7, March 1946

*Food preferences. F. P. Kennedy, J. B. Brodie and A. C. Willard.—p. 65.
The relation of the dietetic profession to business. F. Ignatieff.—p. 83.
Nutrition and dietetics in Holland. D. Y. Ten Haaf.—p. 86.

Food Preferences. The food preferences of 1613 individuals were studied by two methods: first, by checking of food inventories, and second, by securing individual lists of likes and dislikes. The former method yielded much specific information, while the latter yielded results of more general nature concerning the more commonly used foods, and registers fewer dislikes. Both methods showed general harmony in results. A major portion of the survey is concerned with the likes and dislikes of household science women. Detailed tabulation of results is included.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 25, May 1946

*Studies of thiamine metabolism in man: I. Thiamine balance. The normal requirement of vitamin B_1 and the role of fecal thiamine in human nutrition. B. Alexander, F. Landwehr.—p. 287.
*Studies of thiamine metabolism in man. II. Thiamine and pyrimidine excretion with special reference to the relationship between injected and excreted thiamine in normal and abnormal subjects. B. Alexander, G Landewehr, F. Mitchell.—p. 294.
*Chemical, clinical, and immunological studies on the products of human plasma fractionation. XXVI. The use of salt poor concentrated human serum albumin solution in the treatment of hepatic cirrhosis. B. W. Thorn, S. F. Armstrong, B. D. Davenport.—p. 304.
*Studies in ascorbic acid with especial reference to the white layer. II. The relation of intake to blood levels in normal children and the effect of acute and chronic illness.—M. G. Wilson, R. Lubschee.—p. 428.

Thiamine Metabolism in Man. The minimal requirement of thiamine was established by the difference between ingested thiamine and thiamine excreted into the urine. In a normal male whose caloric intake was 2400 calories, 0.44 mg. per 1000 calories was found to be the minimal requirement. Most of the fecal thiamine probably resulted from intestinal biosynthesis and existed largely within the bodies of fecal organisms. It was found that the excretion of thiamine into the urine was directly related to the size of the dose of the vitamin. The urinary excretion of pyrimidine increased as the dose of thiamine increased. Urinary pyrimidine plus urinary thiamine accounted for practically all of the thiamine administered.

Salt-poor Human Albumin in Hepatic Cirrhosis. Salt-poor concentrated human serum albumin was given intravenously for the periods varying between one and ten days at dosages of 50 gm. a day to a group of five patients representing several types of hepatic cirrhosis. Patients were maintained on a diet adequate in calories, protein, and less than 70 gm. of fat per day with supplementary vitamins and liver. The intake of sodium chloride was restricted. The slow attainment of equilibrium between plasma and ascitic fluid proteins suggested that more intensive and prolonged treatment must be carried out before any conclusion could be reached regarding the ability of albumin to mobilize ascitic fluid. Uniform and striking increases in serum albumin levels followed albumin administration. These dosages were proportional. Oral administration of albumin was ineffective. More promising fields for albumin therapy in liver disease lie in the study of severe cirrhotics who, on diet therapy alone can maintain positive nitrogen balance but cannot raise the serum albumin level, and in long continued hepatitis where anexoria gravely compromises the dietary intake and thus prevents attainment of positive nitrogen balance.

Ascorbic Acid Levels in Children. It was found that the recommended daily allowances of 50 to 75 mg. of ascorbic acid for children, formulated by the *National Research Council* is not excessive. Habitual intakes of 3 to 8.9 mg. per kg. of body weight (at least 100 mg. per day) are necessary to insure the maintenance of levels of 25 mg. per 100 cc. or more in the white layer of the blood during childhood. Habitual intakes of 200 to 600 mg. per day are unnecessary and inadvisable.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 15, December 1945

*Types of oedema cases seen in a rural area in Bengal. P. C. Sen and S. C. Seal.—p. 67.

Oedema. This is the report of an investigation of nine cases of oedema which occurred in the village of Paltagarh in December 1944. Cases of oedema have been occurring with increasing frequency in India in recent years. Five of the cases were clinically diagnosed as epidemic dropsy, three of the cases were due to, or associated with nutritional deficiencies, and one case was from a post-dysenteric condition. The diagnosis was confirmed in all cases by laboratory findings, a clinical test with vitamin B_1, and dietetic and economics surveys. All the four cases other than those of epidemic dropsy were also suffering from hookworm infection which might have further contributed to the condition. The method of investigation is described.

THE JOURNAL OF NUTRITION

Vol. 31, May 10, 1946

*Biological value of proteins in relation to the essential amino acids which they contain. I. The endogenous nitrogen of man. II. Interconvertibility of biological values illustrated by supplementing egg and soy protein with essential amino acids. J. R. Murlin, L. E. Edwards, E. C. Hawley, L. C. Clark.—p. 533 and 555.
*Some interrelationships of dietary iron, copper and cobalt in metabolism. A. F. H. Houk, A. W. Thomas, A. C. Sherman.—p. 609.

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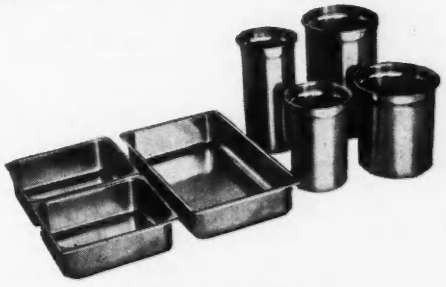

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Endogenous Nitrogen of Man. It was found that dependable and stable endogenous nitrogen levels can be reached on the fourth day of a "no-protein" diet. The "no-protein" diet used contained not more than 0.29 gm. for the average individual. In the second set of experiments, it was found that adding simple essential amino acids to egg or soybean protein at or near the endogenous level of intake does not improve the biological value of these proteins.

Role of Cobalt in Normal Metabolism. To determine the effect of iron, copper, and cobalt on food intake, growth, hemoglobin level and metal storage and retention, a set of five diets were fed to young healthy albino rats. A low intake of iron and copper was found to be correlated with a decreased food intake, growth, and hemoglobin level. Cobalt retention per grams of fresh rat carcass varied with diet, age, and sex of animals. Iron and copper did not effect cobalt retention or vice versa. The rat conserved iron with greater efficiency than copper. Anemic animals retain more metal than normal animals on the same diet.

THE JOURNAL OF PEDIATRICS

Vol. 28, May 1946

*Poor eating habits of the runabout child. The role of physiologic anorexia. E. S. Hewitt and C. A. Aldrich.—p. 595.

Poor Eating Habits. Among 360 children, from 1 to 3 years of age, encountered in a well-baby clinic, 82 (23 per cent) were reported by their mothers to be troubled with anorexia. Simple directions were given to the mothers of these children, usually in one visit only. These mothers were advised: 1. To stop forcing food, allowing the child to eat what he wanted in a reasonable, but limited, time. 2. To offer mostly the foods that the child liked without undue coaxing or threats. 3. To remove any food left, without comment, and to offer no more until the next meal. 4. To give no more than approximately 1 pint of milk in 24 hours. In some instances, it was advised that the milk be skimmed. Several months later, 65 of the 82 children were re-examined. It was then found that the anorexia of 91% of the 65 children had been cured. The remaining 9% (1.7% of the entire group of 360) presented multiple behavior problems. It is believed that there is a physiologic waning of appetite toward the end of the first year of life, because increase in weight is much less rapid than it is during the first six months of life. Mothers should be advised of this in advance.

THE LANCET

Vol. 250, May 18, 1946

*Nutritional neuropathy in prisoners-of-war and internees from Hong Kong. C. A. Clarke, I. B. Sneldon.—p. 734.

*Dental caries. Effect of carbohydrate supplements on susceptibility of infants. J. D. King.—p. 646.

Nutritional Neuropathy. In this article a nutritional neuropathy in a group of repatriated prisoners-of-war from Hong Kong is described. Their response to a high caloric diet and massive vitamin therapy was poor. Their condition is considered to be due to a deficient diet containing a toxic or antivitamin principle, together with lack of vitamin B complex.

Dental Caries. An investigation was made of the effects of daily supplements of boiled sweets and chocolate biscuits on the deciduous teeth of infants living at two institutions. The supplements were given at night, immediately before going to bed and after any cleansing of the mouth and teeth. No increase in caries activity was found after periods of six months to two years. A dietary survey of institutions revealed a relatively high intake of vitamins A and D and a fairly satisfactory level of calcium and phosphorus. It is conceivable that the regular hours of meals, exercise, and rest of these institutional children, in contrast to the irregularities so often found in the private household, might have contributed to a better assimilation and utilization of the dietary nutrients available.

THE MILBANK MEMORIAL FUND QUARTERLY

Vol. 24, April 1946

*Nutritional status of aircraft workers in southern California. IV. Effects of vitamin supplementation on clinical, instrumental, and laboratory findings, and symptoms. H. Borsook, J. W. Dubnoff, G. Keighley, D. G. Wiehl, E. B. Goolden, and J. G. Williams.—p. 99.

Nutritional Status of Aircraft Workers. This is the fourth paper in a series describing the diagnostic procedures used to detect nutritional deficiencies in over five hundred persons, half of whom were given a six vitamin and calcium supplement and half a placebo for nine to 12 months. Comparison of these two groups was made with respect to their nutritional status before and after the administration of supplements. The effect of therapy with respect to prevalence of clinical signs was evaluated for the following: Vitamin A deficiency—follicular hyperkeratosis and loss of conjunctival transparency; thiamin deficiency—abnormalities in reflexes, calf muscle tenderness, plantar dysesthesia, and loss of vibratory sensibility; riboflavin deficiency—cheilotis and other skin manifestations, and corneal vascularization; niacin deficiency—tongue abnormalities. At the end of the therapy period, persons who had received vitamins had a lower prevalence of follicular hyperkeratosis and of tongue abnormalities and had a greater improvement in conjunctival transparency than those who received placebos. For these signs, the data are suggestive of a positive therapeutic effect, but for all others there was no evidence of any response to therapy. Medical histories obtained at the end of the study also showed no symptomatic superiority for persons who received the vitamin supplement.

THE NEW ENGLAND JOURNAL OF MEDICINE

Vol. 234, May 2, 1946

*Low sodium diet and free fluid intake in the treatment of congestive heart failure. W. C. Bridges, E. O. Wheeler, and P. D. White.—p. 573.

Vol. 234, May 23, 1946

*Hepatolenticular degeneration II. Nutritional factors: Observations on methionine and high protein diets. F. Homburger.—p. 863.

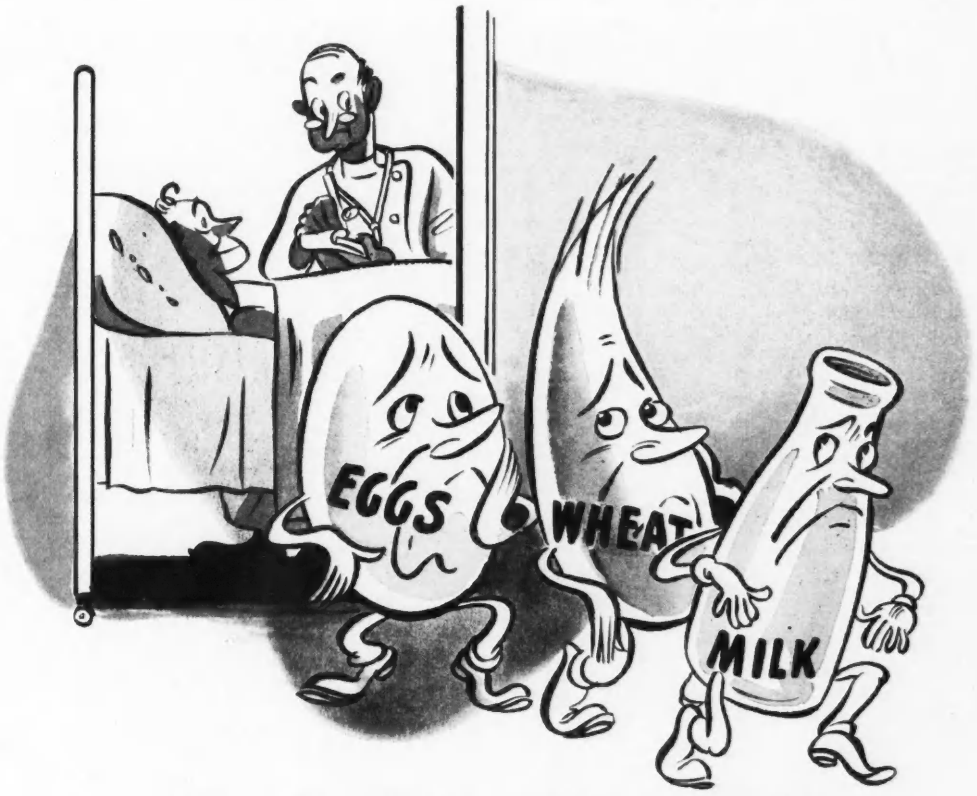
Vol. 234, May 30, 1946

*Normal growth and development during adolescence. H. C. Stuart.—p. 666.

Low Sodium Diet in Congestive Heart Failure. The restriction of sodium to levels of 700 to 1000 mg. (1.75 to 2.63 gm. of sodium chloride) every twenty-four hours is helpful in the control of certain cases of congestive heart failure. When sodium intake is at a minimum, water may be given freely. This regimen does not replace rest, digitalis and diuretic therapy but is a valuable adjunct to the treatment of obstinate congestive failure.

Adolescent Growth. The three consecutive articles present the physical growth and the principal physiological changes of interest in clinical medicine that occur during the period known as adolescence. Much attention is given to the individual or group variations and the effects of different environmental forces in modifying the progress of adolescent changes.

Hepatolenticular Degeneration. It was found that high-caloric diets rich in carbohydrates and protein but poor in fat are of definite value in improving the general condition and liver function of patients with hepatolenticular de-



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generation. The addition of methionine to such diets is not a useful form of therapy. However, it seems possible that it has a beneficial effect when the protein content of the diet is low.

THE NEW YORK STATE JOURNAL OF MEDICINE

Vol. 46, May 15, 1946

*Management of acute congestive heart failure. H. Gross, and A. Jezer.—p. 1107.

Congestive Heart Failure. In acute infection combined with central and peripheral failure, fluids should be given liberally, without salt, up to 4 liters a day. In uncomplicated congestive failure. fluids may be given ad libitum without salt, together with mercury or digitalis, or both. Article includes discussion of digitalis, mercuricals, quinidine, oxygen, and opiates as methods of treating acute congestive failure.

NUTRICIÓN (Cuba)

Vol. 1, March 1946

This is the first issue of the official organ of the Instituto Coordinador de Nutrición de Cuba. The history and aims of the Institute are summed up in a short article by Dr. Guillermo García López, the president of the board of directors. The Institute is an outgrowth of the First National Congress of Nutrition held in Cuba in September, 1943, and of the First Nutrition Workshop (see J. Am. Dietet. A. V. 21: 304). The recent work of Dr. Tom Spies on folic acid was accomplished with the cooperation of the Institute.

In "Editor's Notes" Dr. Ernesto Trelles gives high praise to Mrs. Myrtle H. Neblett and Mrs. Silvia Beltrons for their part in organizing the Institute, and then discusses the work of Dr. Spies at the Calixto García Hospital. Twenty patients suffering from tropical sprue were subjects of Dr. Spies' experiments. Folic acid is related to the yellow pigment xanthopterin in the powder of butterflies' wings. The name is derived from the latin "folium" (leaf), the acid being found in green leaves. "Factor M" was observed in monkeys on a diet lacking in the B-complex. It may be obtained synthetically at a very high cost. It is an amorphous yellow-gold powder, water soluble, and possesses antianemic properties. The final results of Dr. Spies' treatment of the patients will be published later.

Dr. R. Sopo Barreto describes the Nutrition Workshop at Cienfuegos. There are an "Educational Section" (Dr. Ana Echegoyan), "Scientific Notices" (Dr. Hady López and Mrs. Silvia Beltrons) and "Gleanings" (Mrs. Neblett) which complete the issue.

PHYSIOLOGICAL REVIEWS

Vol. 26, April 1946

*Lipins and lipidoses. S. J. Thannhauser, and Gerhard Schmidt.—p. 275.

Lipins and Lipidoses. A complete discussion of the chemistry of the lipins, recent aspects of the physiology of the lipins and lipidoses is presented.

PUBLIC HEALTH REPORTS

Vol. 61, May 17, 1946

*Shadowed replicas of tooth surfaces. D. B. Scott and R. W. G. Wyckoff.—p. 697.

Tooth surfaces. A technique has been devised for preparing metal-shadowed collodion replicas of the surfaces of teeth in situ as well as of extracted teeth. These metal-shadowed replicas make possible visualization of the microstructure and topographical surface of the enamel, providing a means of approach to such important dental problems as: 1. The characteristics of normal tooth surfaces, 2. The initiation and gradual development of caries, 3. The manner in which chemical agents, such as acids and fluorides, hasten or retard tooth disintegration, and 4. The effects of dentifrices and abrasives on enamel surfaces. The technique is described, and typical micrographs are presented.

REVISTA DE LA ASOCIACION ARGENTINA DE DIETOLOGIA

Vol. III, October, November and Deecmber, 1945

*Study of the fixation of the calcium of some inorganic salts. A. Escudero, M. L. Herraiz and E. Musmanno.—p. 258.

*Influence of whole wheat bread and the keto-antiketogenic quotient of the diet on the fixation of calcium and phosphorus in the white rat. A. Escudero, M. L. Herraiz and E. Musmanno.—p. 265.

*Statistical study of glucemia in 780 obese subjects. P. A. Landabure. P. M. Cereijo and I. D. Burgos.—p. 284.

Calcium Fixation. In the white rat the fixation of Ca of calcium lactate, mono- di- and tricalcium phosphate varies between 67% and 81%. The calcium content of the diet has some effect on the growth of the white rat, but is not parallel to it. About 80 mg. per 100 calories is recommended for maximum fixation.

Calcium and phosphorus fixation. Sixty-seven animals were experimented on. The addition of whole wheat bread with a high phytic acid content had no appreciable effect on the fixation of calcium. There was no difference in the quantity of phosphorus fixed when 60% of the mineral given was in the form of phytic phosphorus as compared with 60% given as mineral phosphorus. Varying the quantity of fat in the diet so that keto-antiketogenic quotient varied from 0.06 to 0.3 slightly reduced the fixation of calcium and phosphorus. Fixation varied with quantity administered.

Glucemia. Normal glucemia appeared in 92% of the obese subjects studied. There was no relation between the rate of basal metabolism and the glucemia. The age at which obesity developed, and excessive weight, had no effect. Hyperglucemia was not observed in the older subjects. Charts of 50% of the subjects showed a characteristic flat curve indicating probable functional hyperinsulinism.

REVISTA DE SANIDAD Y ASISTENCIA SOCIAL (Caracas, Venezuela)

Vol. 10, October, December, 1945

*Control of impurities in foods. Victor M. Márquez.—p. 599.

Impurities. Sterilization does not rid foods of any impurities or foreign matter which may be present. The presence of glass particles, despite some literature to the contrary, may be a serious factor. The determination of impurities in a food gives a clue to the conditions under which it is prepared. Ten causes of the presence of impurities in foods are listed: 1. Preparation in exposed places. 2. Sweeping during process of preparation. 3. Lack of glass or screens in doors and windows. 4. Defective floors and roofs. 5. Proximity to latrines or refuse. 6. Free access for domestic animals. 7. Unhygienic handling—dirty equipment. 8. Untidy personnel—no gloves, caps or aprons. 9. Food in direct contact with the ground. 10. Unsanitary methods of selling and distribution. General methods of control are described—i.e., visual inspection, filtration, sedimentation, etc.—and detailed methods are given for analyzing specific foods for particular impurities. Forty-three photographic plates show conditions under which food is distributed, equipment used in making analyses, and various types of impurities observed.

Which way will these twigs incline?

Remember that old saying, "As the twig is bent . . ."? It applies just as truly to the children of Europe and Asia as it does to those right here. They can grow to strong, good citizenship. Or, warped in mind and body, embittered by constant hunger—*listen to another Hitler a few years from now!*

What *you* do in this critical hour will help decide their future. So won't you back up in every *possible* way our promise to send food?

That means sharing your table, so long as the need is pressing. Surely, you'll continue to salvage fats, serve potatoes, save flour. Put up your vegetable crop, so you can give more to the Emergency Food Collection.

It's easier to do with less bread if you keep in mind the fact that only *half a slice* per day from every American home allows 500,000 loaves to go overseas. While we may scrimp, each of us will still eat *well*. There's abundant nourishment at your market. There's milk—and many other dairy products—to lend meals high health value and flavorful variety.

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SCIENCE

Vol. 103, May 3, 1946

*On the fluorometric determination of nicotinamide. J. V. Scudi.—p. 567.

Fluorometric Determination of Nicotinamide. It is desirable to have a simple method of measuring both nicotinamide and F_2, a metabolite of nicotinamide, fluorometrically. The method described in this paper is simple, sensitive and more reproducible than existing colorimetric methods.

AMERICAN COOKERY

Vol. 51, May 1946

*The school lunch program in the state of New York. N. Voegele.—p. 40.
*Flavor—food processors fight to protect it.—p. 44.
*A glossary of cooking terms. F. de N. Schroeder.—p. 46.

N. Y. State School Lunch Program. In the beginning, the aim of the program was to provide one hot dish at noon to supplement the lunches brought from home. Now a complete lunch is served, providing one-third to one-half of the daily nutritional requirements. New York state has engaged a staff of trained home economists who have developed a splendid program. Not only are the children in better health doing better work in their studies, but the parents have recognized the benefits of the school lunch.

Flavor. The purpose of the food processor is to protect the flavor and nutrients of food. Processing interrupts the natural process of deterioration and keeps the food palatable and nutritious. The foes of flavor are oxygen, light, heat, enzymes, and microorganisms. Flash pasteurization of milk was developed because the old methods gave an unpleasant flavor to the milk. Vacuum packing was devised because some foods packaged in the presence of oxygen developed an unpleasant flavor upon storage. In canning, the use of high temperatures for short periods of time was perfected because it makes for minimum flavor change. New processes are being developed for drying milk at lower temperatures in a vacuum in order to retain a flavor more closely resembling the flavor of fresh milk. Dehydration, even when done with the utmost care, results in the loss of volatile aromatic compounds through evaporation. For good keeping qualities, the moisture content of dehydrated foods should not exceed 10 per cent. There are many changes in flavor brought about when fruits and vegetables are cooked in cans, but canners have greatly improved their canning methods in recent years. Quick freezing is probably the best method of food preservation from the flavor standpoint.

Glossary of Cooking Terms. "Cafe louvois" is hot chocolate and black coffee, half and half, served in large demi-tasse cups with a dot of whipped cream on top; "grog" is a drink consisting of one third rum and two thirds water; "hodge-podge" is a stew consisting of dry mutton with a great many different vegetables; "lemon" is of India origin and means "sour tree"; "sauce Bearnaise" is a Hollandaise sauce made with chopped tarragon leaves and tarragon vinegar in place of lemon juice; "sauce Mornay" is a sauce consisting of egg yolks, grated Parmesan cheese, butter, and white sauce. It goes best with eggs, fish, and vegetables au gratin; "roux" white, fawn, and brown—consists of butter and flour. White roux plus cream and a little chicken stock gives you sauce Béchamel.

AMERICAN RESTAURANT MAGAZINE

Vol. 30, May 1946

Eaton restaurants. S. A. Lewis.—p. 25.
*Color in spring and summer menus. L. D. Freeman.—p. 28.
Is incentive pay the answer? L. Weaver.—p. 30.
*Advises proper meat cookery for conservation. J. A. Cline.—p. 39.

Colorful Menus. Suggestions are given for the use of spring vegetables and fruits. Broccoli may be used for flavor, cooked asparagus for a luncheon dish and topping for salads. Beets and beet greens may be cooked separately and combined with lemon juice, or served as spiced beet salad with mustard-flavored buttermilk dressing. Carrots may be baked whole and rolled in bacon drippings, chopped watercress, mint, or parsley. Carrots may be used in salads and relish trays. Potatoes may be boiled in jackets, pan-fried, or made into cheese and potato pie. Celery may be served au gratin or the stalks may be served with stuffed egg halves and mustard flavored white sauce. Avocados may be served with grapefruit and orange sections, with strawberries on watercress, or with tomatoes and scallions on lettuce with cheese-flavored French dressing. Avocado may be filled with Bing cherries and fresh pineapple wedges. For dessert, custards made with honey, maple syrup or brown sugar may be tried. Fresh or frozen fruits for appetizers, desserts, and sauces are also attractive. Luncheon entrees of chicken salad-stuffed rolls; cheese-stuffed grilled frankfurters in finger rolls; pan-fried Canadian bacon and eggs with hashed brown potatoes and onions; escalloped ham and Lima beans; and ham noodle casserole with crumb topping are also suggested.

Food Conservation. To conserve food make single rolls smaller, serve fewer crackers, decrease toast garnishes, leave crusts on sandwiches, make single crust pies, substitute corn and buckwheat for wheat cakes, oatmeal and corn meal in place of wheat cookies. Use fruits for desserts, make smaller cakes, boiled dressing instead of mayonnaise and French, clarify kitchen fats and use for frying and seasoning, eliminate fried chicken and fish. Avoid shrinkage loss in meat cookery. Shrinkage of meats depends upon temperature; the higher the temperature and greater the degree of doneness, the greater the shrinkage. From 15–20% of meat shrinkage in kitchens could be prevented by lowering the cooking temperature. An oven thermometer is needed to check thermostatic controls or to control ovens manually. A meat thermometer should be used for roasts to cook to desired degree of doneness and eliminate excess shrinkage. Low oven temperature means 250° to 350°F.

BAKER'S HELPER

Vol. 85, May 4, 1946

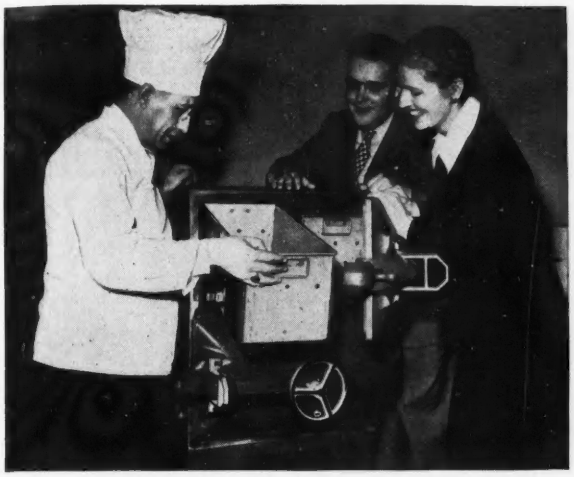
*25% flour cut now in effect.—p. 43.
Soy bean oil pays dividends to Canadian bakery. M. W. Bowman.—p. 50.
*Technical and economical advantages of soy flour. L. G. Trempel.—p. 54

Vol. 85, May 18, 1946

Rodent infestation in a bakery. E. L. Holmes.—p. 42.
*Knowledge of costs essential for successful management. W. E. Broeg.—p. 44.
*Bread ingredients—the specific role of each. R. W. Selman, Jr.—p. 46.

Flour Cut. New paragraphs have been added to War Food Order 144, announced April 19. No miller shall manufacture wheat into flour for domestic use in excess of 75% of the amount distributed by him for domestic use in the corresponding month of last year. Second, no food manufacturer shall produce edible products for human consumption in excess of 75% of the wheat used in the corresponding month of last year. For the baker, it is a matter of receiving the equivalent of 75% of the amount of flour bought in the corresponding period last year. Some bakers are preparing more sweet doughs in place of the less profitable bread items.

Soy Flour Advantages. Soy flour is prepared and packaged under modern sanitary conditions from clean, sound dehulled yellow soybeans. Three types of flour are manufactured: full-fat or high-fat containing 22% fat; low fat



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containing 5–7% fat; and defatted or non-fat flour containing less than 1% fat. Soy flour offers the food industry the opportunity of adding high quality protein, minerals, pure vegetable fat and vitamins to products without material cost. Soy flour offers technical and economical advantages: a more uniform, richer appearance and improved toasting quality of bread; longer shelf life, retarding staling rate; increased nutritional value of bakery products; improved texture and eating characteristics; easier handling during makeup and less shrinkage upon cooling and baking; economical to use, low in cost compared to shortening, eggs, and milk solids. Every pound of soy flour adds 2 lb. of extra batter without increasing the use of scarce ingredients. It may be added to any well balanced baking formula, the amount varying with the type of product and formula used. It may be added to fermented dough and pie crust formulas by increasing moisture by 75–150% per lb. of soy flour used. About 1 oz. baking powder and ¼–½ oz. salt may be added per lb. of soy flour. No change in handling or mixing is needed. Soy flour may be added by sifting with wheat flour, creaming or blending with sugar, shortening, and other ingredients, or by suspending in water.

Costs in Bakery Management. Failure to establish an adequate cost accounting system is one of the major reasons for high mortality rate of small retail bakeries. In addition to actual food costs, there is direct labor cost and fixed expenses such as rent, light, heat, depreciation, taxes, insurance, compensation. Advance figuring is necessary to determine the actual food cost before a sales price can be established. Wastes may be of several kinds, excessive quantities of cripples, faulty switches on automatic devices, leaky oven doors, improperly adjusted refrigeration devices, leaky refrigerator door gaskets, and leftovers or stales. Only through working with figures will be knowledge of actual material cost be gained. A 13-period year with four Saturdays per period has been found advisable in the retail field so that comparisons of periods can be made.

BUILDINGS AND BUILDING MANAGEMENT

Vol. 46, May 1946

Outline of building maintenance.—p. 28.
*Preventive maintenance. E. W. Fair.—p. 34.
Flexible lease clause.—p. 41.
*Vital facts about DDT. C. T. Coley.—p. 50.

Vol. 46, June 1946

An aluminum skyscraper,—p. 19.
Proper floor maintenance is a vital factor in maintaining prestige. D. E. Smalley.—p. 23.
Wage incentives are intelligent selfishness. E. Mottershead.—p. 28.
Windows you can see through.—p. 37.
*Quartermaster Corps safety color code proving effective.—p. 48.

Preventive Maintenance. Preventive maintenance results in the avoidance of future maintenance, the reduction of equipment failures, the avoidance of excessive repair bills, and the elimination of unnecessary trouble. One method of insuring a careful check-up is a maintenance card file containing an inventory of all pieces of equipment, noting the types, replaceable parts, availability, and those pieces of equipment receiving the greatest stress and strain. One of the principles of protective maintenance is to keep every piece of equipment and machinery clean and dry. The air hose is most beneficial in blowing out dust and dirt caused by collecting oil, dust, acids, grease, and moisture. It is important to use varnish, lacquer, shellac, and other products liberally as a protective film for equipment parts. Replacing original protective films is probably the most neglected factor in all maintenance work. Large frames on equipment and machinery need care and protection, as well as the intricate parts. These frames are subjected to corrosion from oil and water, fractures from continued operation of out-of-line shafts, fractures from breakage, and stress exerted by weakening foundations. The maintenance card file will also serve to check on all units of the building equipment, and to insure that no maintenance chore had been overlooked. One card should be made out for every unit of equipment, including the name and location of the unit, and the schedule for periodic inspections. Information should be added covering the recommended grade and type of lubricant to be used. This record will be valuable in evaluating maintenance costs on a particular unit when replacements are made.

There are certain hazards in any building that are worth noting. Step-down transformers should be carefully isolated from all but persons who understand this type of electrical equipment. All switches should be enclosed and portable lights should have heavily insulated cords. Motors, generators, and switchboards should be enclosed and protected if within 8 ft. of the floor and working area.

Facts about DDT. Only a small concentration of DDT is needed in insecticides. With the addition of a wetting agent, DDT may be mixed with water for use as a spray. The powder is only slightly soluble in water, but it can also be dissolved in various petroleum oils, xylene, or other light oils, to make an oil concentrate up to 50% by weight. These oil concentrates may be mixed with water to reduce the mixture to a desired strength. DDT acts as a stomach and contact poison, paralyzing the nervous systems of most insects. Entomologists have stated that DDT is not effective against all insects; and against certain insects, it is much slower in action than other poisons. In applying DDT, it is important to use a coarse wet spray so that much of the DDT will remain on the treated surface, and not fly elsewhere in the air. For cockroaches, a 10% powder or a 5% spray should be used for treating their hiding places. It is more important to obtain a deposit of spray on surfaces where the insects are found or over which they travel, rather than on the insects themselves. Only enough material to wet the surface is required. In oil solutions, DDT is readily absorbed through the skins of man and animals, and persons using it in this form are urged to take special precautions to avoid repeated and prolonged exposures. Powders containing up to 10% for such purposes as dusting cloths appear to offer no hazards. DDT is stable under conditions of low temperatures and long storage. It readily decomposes when exposed to strong sunlight and high temperatures and loses some of its toxic qualities.

Color Code. The safety color code adopted by Army Quartermaster Corps has proved effective. Red is used for identification of fire protection equipment, danger and stop signals. Green is basic for designating safety, location of first aid equipment and dispensaries, starting buttons and "go" signals for traffic. Yellow designates caution and makes physical hazards more visible. Black, white, and their combinations indicate housekeeping, sanitation, and traffic markings. Value of standardizing code has proved effective where labor turnovers were great and employees moved from one plant to another.

CEREAL CHEMISTRY

Vol. 23, May 1946

*Use of spray-dried whole-egg powder in sponge cakes. R. Jordan and M. S. Pettijohn.—p. 265.
Preparation and nitrogen content of soybean protein. W. G. Smiley and A. K. Smith.—p. 288.
*Staling studies on breads containing waxy maize starch. P. P. Noznick P. P. Merritt, and W. F. Geddes.—p. 297.
*Effect of soy flour and nonfat dry milk solids in white bread on the nutritional quality of the protein as measured by three biological methods. S. C. Carlson, F. H. Hafner, and J. W. Hayward.—p. 305.
The vitamin B-complex content of the commercial milling products of Egyptian rice. S. A. Price.—p. 318.
Relationship of zein to the total protein in corn. D. W. Hansen, B. Brimhall, and G. F. Sprague.—p. 329.

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Hemo compared with minimum daily adult requirements*

	Minimum Daily Adult Requirements*	1½ ounces of Hemo and 16 fluid ounces of milk (2 glasses)	1½ ounces (2 servings) of Hemo Powder
Vitamin A	4000 U. S. P. Units	4900	4000
Vitamin B_1	333 U. S. P. Units	400	333
Vitamin B_2	2 Milligrams	3	2
Vitamin D	400 U. S. P. Units	410	400
Niacin amide	* *	10.3 mg.	10 mg.
Iron	10 Milligrams	15.7	14.7
Calcium	750 Milligrams	950	376
Phosphorus	750 Milligrams	750	288

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IF IT'S BORDEN'S, IT'S GOT TO BE GOOD!

Egg Powder in Sponge Cakes. The leavening property of spray-dried whole egg powder was tested by using it for making sponge cakes. Acceptable cakes were made both with and without the addition of a secondary leavening agent (baking powder) to the formula. Temperature was found to be an important factor in the production of a satisfactory egg-sugar foam or meringue from dried eggs. When the initial temperature of the egg-sugar-water mixture was 140° F., and beating was done on an electric mixer with a wire whip, a foam of suitable lightness for a small-size sponge cake was produced in 3.5 to 7.5 min. of beating time. Cream of tartar increased the tenderness of the cakes. The addition of a small amount of baking powder to the formula increased the volume somewhat and contributed to some extent to the tenderness of the cakes. Hence, a modified sponge cake formula in which some baking powder is included is recommended for use if dried eggs are used for sponge cakes.

Staling Studies on Breads. Bread was baked from gluten-starch mixtures, the starch component of which consisted of mixtures of wheat starch with various quantities of waxy maize starch. The rate of staling was followed by compression and swelling tests on the crumb. Flour absorption and dough development time increased and specific volume and crumb rigidity decreased, with an increase in the percentage of waxy maize starch present. Complete substitution of waxy maize starch for wheat starch gave loaves which were characterized externally by a shiny, sugary crust and internally by a gummy, compressible crumb, and excessive shrinkage after baking. Crumb compressibility and crumb swelling capacity, measured three hours after baking, were increased when the starch of waxy maize was substituted for that of wheat. Upon storage, crumb compressibility of loaves containing waxy maize decreased at about the same rate as that of loaves made from mixtures of gluten and wheat starch. Swelling capacity of the crumb decreased more rapidly with time when waxy maize starch was present. These studies suggest that bread staling is associated with changes in the branched chain component (amylopectin) of wheat starch.

Soy Flour and Dry Milk Solids in White Bread. Three biological methods were used to evaluate the nutritional quality of the protein present in white water bread, 3% and 5% white soy breads, 3% and 6% white milk breads, and whole wheat water bread. The three biological methods used were as follows: nitrogen balance; two growth assays, one using ad libitum and the other equalized food intake; and body protein storage. The results for the nutritional quality of the bread protein obtained by the three methods showed that 3% white soy bread and 3% white milk bread were equal, and that both of these breads were significantly better than white water bread. The 5% white soy bread was at least equal to 6% white milk bread, and both of these were slightly superior to the 3% white soy or 3% white milk breads, and significantly superior to white water bread. The 5% white soy bread was equal to or better than whole wheat water bread, as was 6% white milk bread. The three methods showed good agreement with respect to the relative rank of the five white bread proteins, while the relative position of whole wheat water bread protein was apparently related to the level of food intake.

FOOD INDUSTRIES

Vol. 18, May 1946

*Immersion freezing in liquid nitrous oxide. G. MacKinney.—p. 81.
Frozen orange juice.—p. 84.
*Dehydrofreezing—new way of preserving food. L. B. Howard and H. Campbell.—p. 88.
How to make canned ham and sweet potatoes. W. W. Bailey.—p. 92.
*Protein hydrolysates—favor ingredients for foods. L. A. Hall.—p. 95.
Corn starch—a versatile commodity. N. F. Kennedy.—p. 99.
*How to make grating cheese. C. D. Dahle and G. H. Watrous, Jr.—p. 103.
*Ascorbic-citric acids prevent browning of cut fruit. H. G. Luther and G. O. Cragwell.—p. 104.
On the test market.—p. 118.
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Method of making high strength vinegar.—p. 183.
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*Phosphatides retard rancidity.—p. 184.
*Stability of carotene in oils.—p. 190.
*Apparatus for packaging food products.—p. 192.
*Dehydrated fat-free soup.—p. 194.
*New insecticides.—p. 194.

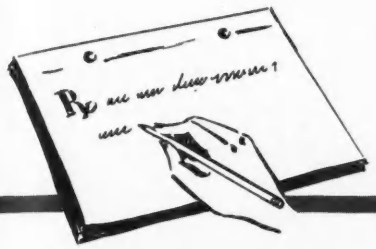
Quick Freezing News. Quick freezing foods by dipping them in liquid nitrous oxide at −90°C. under a pressure of only one atmosphere was developed in a plant in Germany. The food to be frozen was immersed directly in the liquid nitrous oxide with no harmful effects on the food. The fact that the food to be frozen could be immersed directly into the refrigerant was advantageous because the food was surrounded by a liquid and was more efficiently cooled than if a cold blast gas or air system were used. One advantage of nitrous oxide is the fact that the compressed gas can be liquified in a water condenser. No expensive refrigerant is needed to remove its latent heat. This method of quick freezing needs to be investigated by the U. S. processors of frozen food to determine its advantages and adaptability to their plants.

Dehydrofreezing. Experiments combining dehydration of foods and freezing are progressing. Several trials with fruits and vegetables have shown that moderate dehydration, with the removal of about two thirds of the water content, followed by freezing storage results in excellent products. Dehydrofreezing saves weight, space-packaging materials, and refrigeration load. Products are easier to reconstitute than if dehydrated. Certain products yield results superior to those obtained by freezing alone. High altitude freezing of foods sent by air may be practicable if dehydrofreezing is employed. Experiments with peas, carrots, Royal Anne cherries, boysenberries, apricots, and potatoes were successful. The experiment with asparagus was a failure.

Protein Hydrolysates. Protein hydrolysates have been incorporated into foods without adversely affecting keeping qualities or palatability. A mixture of corn, wheat glutens and casein gives the best product for flavor. The non-essential amino acids contribute a better flavor to the hydrolysates than the essential amino acids. However, hydrolysates having a combination of all amino acids are considered to have a preferred quality rating. Protein hydrolysates can be used in soups, stew, broths, and bouillons. They cannot be used in chicken soup because of the reaction between some of the amino acids and dextrose. Research will continue owing to the interest of the medical profession. It is possible that some of the amino acids may be synthesized on a commercial scale with a reduction in the cost of producing these products.

Grating Cheese. Because of the war, there has been a scarcity of imports of the highly-flavored cheese for grating purposes. At Pennsylvania State College, it was found that a grating cheese could be obtained by forcing the development of flavor-conferring fatty acid by homogenization. The composition of the cheese was about 27% fat, 26–28% moisture, 5.5–6% salt, and 5.2–2.7 pH.

Prevention of Browning in Cut Fruits. Browning and off flavors occur when the natural ascorbic acid in the fruit is destroyed. The enzymes naturally present in the fruit catalyze this destruction when the surface of the cut fruit is exposed to the air. The addition of citric acid in concentrations of about .5%, on the basis of the weight of fruit, caused a complete inactivation of the enzymes present.



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FREE DIETS THAT ARE PRACTICAL
- Wide choice of foods
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DMIB—It's more than a mix—it's a *method* of *better baking.*

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Kindly send me a free copy of your booklet, "How to Maintain Quality Control of Your Baked Goods — at Low Cost."

Name .....
Company .....
Address .....
City..... State.....

Citric or ascorbic acid was applied to fruits in a number of ways. Applications in sirups, and the use of the acid with sugar in the dry state, or application of the dry acids with or without use of sugar were all successful. It may become possible to pack frozen fruit with no sugar, or with a reduced amount and still have a non-browning product. The combined use of ascorbic and citric acids produced better results than ascorbic acid alone.

Corn-Soya. Corn-soya shreds, made of ribbon milled corn and soya with sugar, salt, and malt flavoring have been put out by the Kellogg Co. The carton is marked "new" and contains information about the nutritional advantages.

Tangerine Juice. Tangerine juice with sugar added is packed in No. 2 cans now under the Old South and Pasco labels, by the Pasco Packing Co., Dade City, Florida. The label gives information as to the size of the can, net contents, cups, and servings.

Retarded Rancidity. Vegetable phosphates retard rancidity when added to fats. Vegetable phosphatides are effective in different degrees in different types of fat. Animal fats contain less of the natural inhibitors than vegetable oils. The addition of phosphatides to shortening and frying fats before deodorizing reduces the possibility of introducing foreign flavors into edible products. Phosphatides derived from cotton-seed and corn oils have superior antioxidant qualities and greater stability.

Carotene Stability in Oils. Solutions of carotene in edible oils can be protected by addition of antioxidants and protection can be afforded for periods over a year without special precautions. An accelerated test was used to study the relationship between stability of carotene and temperature. The protection found at the lower temperature was better than that indicated by the rapid test. Combinations of the antioxidants increased the stability of the carotene in cottonseed and cocoanut oils from less than four days without added inhibitor to over a year by the addition of .05% of inhibitor.

Packaging Food Products. A new invention for packaging sterile, quickly perishable materials in easily opened cans so as to keep the contents indefinitely has been patented. Empty containers are passed through a sterilizing and waterproofing heated liquid bath, then into sterile atmosphere, filling with food product in this atmosphere, and applying closure and sealing. On the way out of the chamber, the cans are passed back through the sterilizing and waterproofing chambers.

Dehydrated Fat-Free Soup. Previous to this time, fat-free dehydrated soups were apt to lump when reconstituted. This difficulty has been overcome by making a dough of the ingredients, cooking the dough, extruding it into ribbons, flakes, or cylindrical filaments, and drying these.

HOTEL MANAGEMENT

Vol. 49, April 1946

How we rehabilitated an old hotel so as to triple its former guest capacity E. W. Bell.—p. 31.

Basic principles of quantity cookery. A. Easton.—p. 42.

Teaching young men and women the principles of bookkeeping and front office practice. J. Gruber.—p. 46.

*Instilling the spirit of courteous service in department heads and staff. J. R. Gracey.—p. 52.

*New chemical treatments that safeguard textiles against decay and fire. J. Callahan.—p. 56.

Courteous Service. A practical approach to the problem of proper attitudes has been taken by the manager of Hotel Sheraton. An investigation showed that guests were criticizing the indifference of workers toward jobs, impoliteness and impatience of employees. The majority of complaints centered on lack of courtesy. A courtesy program was instituted by investigating complaints, explaining company policies to employees, selecting department heads to supervise specific sections of the house. Suggestions were invited and those received emphasized increasing efficiency, elimination of waste, time and material, prevention of accidents, and improvement of service. A specific courtesy plan started at the top with the manager going directly to worker when complaints were received. Department heads were encouraged to take added responsibilities. Front office assistant managers were required to spend one day a week with the restaurant manager or wine steward where they followed up complaints and compliments alike. Workers are now trying to win recognition for outstanding courtesy.

Chemically Treated Textiles. New mildew-resistant and water-repellant chemicals protect fabrics when stored. Mildew-proofing bath does not alter texture, feel, pliability, color, physical properties, dye, weave, odor or porous quality of material. Weight is little affected and chemical compounds are compatible with finishes such as starch or cellulose. Application may be made before weaving into cloth, added to waxes and resin, or sprayed on as finish. Application of phenyl mercury oleate which lasts two years may be repeated at end of period at cost of few cents per square yard. Water-repellant process may be combined with mildew-proofing treatments. Fabric is allowed to "breathe" as water is shed. Water repellant chemicals are of two types. The wax aluminum type of emulsion is applied as finish to garment or strip of cloth and disappears when laundered or dry cleaned. Durable type is a form of ammonium salt which is applied before treated product is made. Fluoride base insecticides safeguard fabrics from larvae. Fabrics which do not come in contact with water are treated with compounds of ammonium sulfamate base and will char, but not burst into flame readily. Flame-proofing compositions based on chlorinated paraffin and antimony oxide are effective after contact with water. Formaldehyde mixture applied to cottons, woolens, and rayons stops shrinkage, stretching, creases, and wrinkles.

INSTITUTIONS

Vol. 18, May 1946

*Test-kitchen work plays vital role in mass feeding.—p. 1.

*Electric vegetable cutter—p. 3.

*Non-corrosive meat container.—p. 6.

*Quantity recipes standardized.—p. 17.

*Food conservation program outlined for institutions.—p. 28

*Soybeans useful in stretching supplies of scarce meat, fat.—p. 48.

Terrazzo's life can be long, beautiful, with minimum care.—p. 56.

*Recipe system to meet needs of cafeterias.—p. 77.

Test Kitchen. The operations of the school lunchrooms in Chicago are discussed. Experimental and testing work is done in the testing kitchen; menus are planned; operational standards of food preparation are checked; and service in the various lunchrooms are checked. The test kitchen supervisor presents figure on kinds and amounts of fruits and vegetables that will be ordered by the purchasing department. The test kitchen also examines the raw material when it is delivered to determine whether the product conforms to the specifications. Every menu item has been tested and developed in the kitchen. Recipes list the ingredients, quantities for indicated servings, procedures to follow, size or portion, cost of serving, number of calories per serving, and the principle food values. The test kitchen also sees that the procedures adopted are carried out in all of the 189 lunchrooms. Students are compelled to buy the complete lunch which meets all the nutritional requirements for the meal. Once a month the test kitchen conducts a class for the lunchroom managers where recipes are discussed.

Vegetable Cutter. Qualheim, Inc., Racine, Wisconsin, has produced an electric vegetable cutter. The body is

"There is No Substitute"
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During the war years when we could not obtain BOVRIL, we tried again and again to find a satisfactory substitute for this world-famous Beef Extract — but without success. No other product was found to possess the same remarkable body-building qualities. BOVRIL contains beef proteins in such highly concentrated, easily assimilable form that its powers of stimulating cellular activity and maintaining all-round bodily vigor and energy are truly unique. Our experience has firmly convinced us that there is no substitute for BOVRIL.

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BEEF EXTRACT

Institutional Size BOVRIL Jar, Net Wt. 1 lb. 2 oz. Makes Over 100 Servings

Ask your wholesale grocer or write for prices

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The New, Better Way to Serve Orange Juice

Serve Purest BRAND CONDENSED FROZEN ORANGE JUICE

PUREST BRAND CONDENSED FROZEN ORANGE JUICE is extracted from the finest of tree-ripened fruit, condensed by vacuum process to one-fourth its normal content, put into convenient tin containers, then quick-frozen to preserve its freshness and flavor. It offers four distinct advantages over other types of orange juice.

1st— It is truly fresh in flavor—tastes exactly like freshly extracted orange juice.

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3rd—Being condensed, it costs less to ship and takes up less storage space.

4th—It is easy to prepare for serving. Simply open the can, pour its contents into the mixing receptacle, add three parts water, stir briskly to aerate . . .and it is ready to serve, cooled to normal drinking temperature.

For hospitals, hotels, restaurants, and other institutions this product is winning approval everywhere. Its economy and convenience will appeal to your chef; its quality and health content will appeal to your dietitian; its wonderful fresh flavor will delight those who drink it.

Send today for a free trial can, together with a descriptive folder, analyses, and prices.

A gallon of Purest Brand Condensed Frozen Orange Juice will produce as much drinking juice as you would get from a whole box of fresh oranges.

FLORIDA FRUIT PRODUCTS CO.
CLEARWATER, FLORIDA

aluminum with a white baked enamel finish. Cutting knives are of stainless steel and the cutting edges are serrated to give longer wear. The cutter may be easily cleaned because the cover is removable. The only adjustment that has to be made controls the thickness of the slices; all other operations are set at the factory.

Meat Container. The J. M. Gordon Co., Los Angeles, has put a non-corrosive meat container on the market, made of extra strong alloy aluminum. It will not chip or crack, and will not contaminate fresh, wet meats. The containers have a capacity of 100–120 lb. of meat and weigh only 11¼ lb.

Standardized Recipes. The need for standardized recipes at the Swift & Company cafeterias became clear when their nutrition education program was launched. With the standardization of recipes, it became possible to assure a uniform product, and to establish portion control and cost analysis. Recipes were selected to meet the needs of the 46 plant cafeterias all over the country. Recipes are printed on 8½ by 11 in. cards and are given for 100 portions.

Food Conservation Program. The food conservation program as outlined by John Hennessey, chairman of the American Hotel Association's War Food Committee, includes the following points: conserve wheat and fat products; promote servings of the more plentiful foods; waste nothing; explain and secure the cooperation of employees in carrying out this program; use conservation slogans on menus, wall posters, and other materials; tell your customers the conservation methods that you have put into practice; carry the conservation message in your advertisements and publicize your actual savings.

Use of Soybeans. The limited use of meats and fats has resulted in the use of soybeans for stretching these scarce supplies. Their texture is different from the dried beans that are ordinarily served. Soybeans hold their shape when tender. Because they are low in starch, they do not thicken the surrounding juice when baked. The amount of cooking will depend on the variety and age of the beans. They may be served in a variety of ways. If ground as pulp, they may be used for sandwich fillings, casseroles, soups, meat loaves, cookies and fillings. The pulp may be kept for a week in the refrigerator.

Recipe Development. The Forum Cafeterias, operating in seven cities, have devised a system for building their file of standard recipes. Each unit may test recipes in its own kitchen. When the recipe seems to be satisfactory, it is prepared and run as a regular item on the menu. If the field manager gives his approval, it is made a trial recipe and is sent to the other cafeterias. Three of these must give a favorable report before it can become official.

JOURNAL OF HOME ECONOMICS

Vol. 38, May 1946

*Considering food. D. H. Tuttle.—p. 271.
*Testing the sealing qualities of jar rings. E. H. Dawson, J. A. Lorr, D. E. Shank.—p. 287.
Frozen blueberries: home processing and use. M. E. Kirkpatrick.—p. 291.

Food Costs. The author and her husband kept a record of the food they purchased since July 1, 1942. The purpose was to determine how much money was spent for food and the reasons for the changes in expense. The factors affecting the cost of food were: income, price levels, seasons of the year, meals eaten in restaurants, guest meals, time spent shopping and preparing meals, availability of food, special diet, and other factors including special purchases. They allotted 20% more or less for the food groups, but found that they usually spent more than that amount for milk and cream; more for fruits and vegetables and more for meat. Less was spent for breads and cereals, fats and sugars, and for other groceries. Their diet contained the optimum amount of nutrients essential to health, but it was not so economical as it could have been. This record has been a stimulus to them in planning interesting meals at the lowest cost.

Jar Rings. Since large quantities of fruits, vegetables, meats, and poultry are canned at home each year, a test was undertaken to determine the sealing qualities of jar rings.

WHAT'S NEW IN HOME ECONOMICS

Vol. 10, May 1946

*Food for thought and thought for food. E. H. Davidson.—p. 111.
*Factors in building employee morale. W. S. Pendergast.—p. 112.
*Sugar-saving recipes.—p. 113.
Here, there, and everywhere. W. S. Pendergast.—p. 115.

Nutrition Drive. An annual nutrition drive is held at Jefferson Jr. High School. Pamphlets were discussed in faculty meetings. Fourteen lessons on nutrition were studied by students. Class competition was achieved by broadcasting each student's standing over the loud speaker at the end of the day. Children played Vitamingo after last lesson to determine their actual vitamin and mineral intake. During March, a lunch containing one third of pupil's daily food needs was provided. Those taking Victory Lunches were given V cards. Nutrition movies were shown, demonstrations on food preparation were given at assemblies and parent-teacher meetings. All school departments participated in the drive.

Employee Morale. First requisite of good morale is that each employee feel needed and useful. He needs to derive satisfaction other than wage payment from his job. Workers need respected jobs and to be respected as individuals. The employer must have policies which workers regard as fair and impartial. Good working conditions are important to comfort and safety of employees. A feeling of belonging to the group and to the job can be built up at the initial interview. The manager should receive the new employee on the job and give instructions. Combination telling and showing is the best method to see that the employee understands and is able to do the work. Group meetings bridge the gap between workers and management and make for better all-round relations.

Sugar Saving Recipes. This article gives sugar substitution suggestions for recipes, table of sugar amounts required for various types of desserts, and recipes for berry cobbler, fruit betty, and whole wheat fruit pudding.

Reducing Now Aids the Famine Emergency Program

A leaflet has been prepared by the Bureau of Human Nutrition and Home Economics which provides added motivation to the overweight person for reducing now. For the man or woman who wants to reduce, specific pointers and recommendations are given which fit into Famine Emergency Program.

TOO OFTEN hospital coffee just isn't as good as the coffee the patients are accustomed to drinking at home or in restaurants. Poorly brewed, it can take away the zest for a whole meal. Yet full-flavored, satisfying coffee is so easy to make. Just a little extra care and you have a real appetite perker-upper.

And for the hot, sultry days don't forget Iced Coffee. It's a wonderful refresher. Make it double strength (twice the amount of coffee to the usual amount of water) or make it regular strength and pre-cool before serving. It is important to use lots of ice, either cracked or cubed. You will be surprised what a difference it can make in patients' attitude!

How to get the most out of Coffee

It's easy to make delicious coffee and Iced Coffee drinks. Send for "Coffee—A Little Word on Your Menu" and "Iced Coffee Drinks Everyone Likes." These two leaflets give valuable up-to-the-minute information about coffee and refreshing summer coffee drinks. Write to the Pan-American Coffee Bureau.

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News Notes

Twenty-ninth Annual Meeting of the American Dietetic Association. The Netherland Plaza, Cincinnati, will be the meeting place of the Association from October 14–18. Members and guests who expect to attend the convention are urged to make hotel reservations well in advance of the meeting. The hotel has asked us to remind members of the importance of sharing rooms, requesting as few single rooms as possible.

The Executive Board meeting will be held on Thursday and Friday, October 10 and 11. There is to be a conference of directors of approved courses on Saturday and Sunday, October 12–13. The meeting of the House of Delegates will be held on Monday, October 14. Members of the Association are cordially invited to attend this important meeting of the legislative body of the Association. The Cincinnati and Ohio Dietetic Associations have planned a reception at the Netherland Plaza on Monday evening, October 14, for American Dietetic Association members. The regular program will be held October 15 through October 18.

On Tuesday, October 15 the general theme of the convention will be "Global Nutrition." World-wide nutrition will be the subject for discussion at the opening session, the Welcoming Luncheon and at the afternoon meeting. A general session on Nutrition Appraisal will be held in the evening. Some of the topics for discussion at general sessions during the remainder of the convention are: newer developments in nutrition and diet therapy, the training of employees, labor relations, organization and management, food technology trends, school lunchroom problems, the teaching of dietetics to student nurses, and topics of a related nature.

The Press Relations Luncheon will be held on Wednesday, October 16; a buffet supper honoring the exhibiting firms will be served on Thursday evening; and the Annual Banquet is scheduled for Friday, October 18.

The meeting for presidents of state dietetic associations is being enlarged this year to include all officers of state associations. This session is an important one and a large attendance is anticipated. Further details concerning the program will appear in forthcoming issues of the JOURNAL.

Famine News. Although immediate relief will not be realized by those in famine stricken countries, there are indications that the world food output will be increased over that of one year ago. The USDA reports that on the assumption that present crop producing conditions continue until harvest, the world's food output in 1946–47 will be somewhat larger than the relatively low levels of 1945–46, but below prewar levels on a per capita basis. Since preharvest food stocks are at a low level, the total supplies of available food products during 1946–47 will not be much larger than a year earlier. In order to avoid a critical world food shortage prior to the 1947 harvest, careful use of all food products must be continued.

Cereals: The 1946–47 world wheat production is expected to be larger than in 1945–46; marked reduction of stocks means that total supplies will not be much different. A slight increase in rice acreage is anticipated.

Sugar: There may be greater sugar production.

Fats and Oils: There may be more fats and oils in 1946–47 but they will fall much below requirements. Supplies of olive oil, cocoanut oil, and fish and whale oil probably will increase substantially. However, a decrease is expected in the output of animal oils and perhaps soybeans.

Livestock and Poultry: Due to higher feed prices and restricted feed supplies, the feeding of livestock has been reduced. World supplies of meats, dairy products, and eggs are likely to be somewhat smaller during 1946–47 than during the preceding year.

Grain Exports: In reporting the impressive record made by the United States in shipping food grains abroad for famine relief, President Truman stated that in six months this country has shipped over 5½ million tons of bread grains to help feed the hungry people of other lands.

As an indication of the splendid record of increased shipments it is pertinent to cite that 357,000 long tons of grain and grain products were exported during the first ten days in June as compared with 120,000 long tons exported during the first ten days of May.

Continued cooperation and determined effort by the public will be necessary to lend help during the crisis of hunger abroad.

Conservation Is the Watchword. The USDA stresses food conservation in its publication *Famine Campaign Round Up* by pointing out that in their homes alone in 1945, Americans wasted more food than this country shipped abroad. It is estimated that the waste averaged 7.5 per cent of America's total food production last year. This compares with shipment abroad of 7 per cent of the nation's total food production.

Plans of action carried out in both large and small communities, are outlined in this weekly publication. Grocery stores, restaurants, and other large group feeding units are cooperating in this important work. Utility companies are cooperating by displaying food charts, distributing bulletins and menus to customers, and advertising in local papers. Homemakers submit many questions about planning meals—another indication that the food conservation campaign is reaching family groups.

"Food Insurance" Needed This Year. The need for preserving food in the home and in community centers is greater in 1946 than ever before . . . the crisis is world-wide rather than nation-wide. With July 15–22 designated as National Home Food Preservation Week, the nation's housewives went back into action to equal or better the 4 billion jars of food canned during one war year. Although it is too early for accurate predictions, prospects are for a good fruit and vegetable crop this season with adequate supplies for their preservation. Commenting on the need for more home canning, Secretary Anderson said: "The immediate problem that faces a war-torn world is food. Food spells peace and democracy. Food spells rest instead of foment. It is the obligation of every American to conserve and to preserve this precious food. In this way we assure our own people a better diet, as well as help the famine stricken of the world."

Film on "Frozen Freshness." The Frigidaire Division of General Motors Corporation has a new color motion picture entitled "Frozen Freshness." It is a thirty-minute sound film presenting authoritative, current information on the technique of packaging, freezing, and cooking of frozen

The Role of Milk in PELLAGRA

● It is an interesting fact that pellagra-producing diets are generally low in protein. Investigations also indicate a relationship between the *quality* of dietary protein and pellagra.

Nonfat dry milk solids is one of the most economical sources of high quality protein, supplying all ten of the essential amino acids. It also provides significant amounts of B-vitamins including niacin, all of which may be involved in pellagra prevention.

Keep nonfat dry milk solids in mind as one of your most desirable ingredients.

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FREE FROM ADULTERANTS, preservatives or fortifiers, their use eliminates wide variations in flavor and consistency experienced with average market fruit . . . as Sunfilled presents a unique blending of sweet and sour juices for uniform values. In ready-to-serve form, they closely approximate freshly squeezed juice in all nutritive and characteristic properties. Of dietary importance, the indigestible peel oil fraction has been reduced to but .001%.

TIME SAVING FACTORS which provide for the elimination of inspecting, cutting and reaming of fruit. No handling of cumbersome crates or refuse disposal involved. Far less storage and refrigeration space required.

ECONOMY THE KEYNOTE, high fluctuating market fruit prices may be disregarded. No spoilage or shrinkage losses to increase the actual cost per serving . . . every ounce can be satisfactorily used without waste.

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foods. Verna L. Miller, Director, Home Economics Department of Frigidaire, supervised the production of this excellent film. "Frozen Freshness" not only demonstrates, but describes in detail the steps for preparation of fresh fruits, vegetables, fish and meats; it also covers the freezing of cooked and baked foods, and the preparation of frozen foods for the table. Prints of "Frozen Freshness" in 16 mm sound are available without charge to home economists, schools, women's clubs, and cooking classes. Requests should be addressed to the Department of Public Relations, General Motors Corporation, 1775 Broadway, New York 19, New York.

New England Conference on Organization and Management. The conference, sponsored by the Massachusetts Dietetic Association, was held at Simmons College June 6, 7 and 8 for all home economics graduates responsible for large-scale feeding departments or in any way influential in serving food to the public. Attendance included administrative dietitians from college residence halls, school cafeterias, hospitals, hotels, restaurants and industrial, financial, commercial, and philanthropic institution cafeterias. Veterans Hospital dietitians in the area, heads of home service departments, and student dietitians from the administrative and hospital courses approved by the A. D. A. were registered. Captain Nell Wycliffe, Brooke General Hospital, Fort Sam Houston, Texas, flew up for the meetings, and Helen Mallory, University Hospitals, Cleveland, as well as dietitians from New Jersey and New York, attended all the sessions. Each session was devoted to a specific topic so covered by several distinguished authorities as to present a blueprint for future departmental growth. The sessions on Thursday were devoted to Personnel, Food Production and Service Control, and to Food Conservation; on Friday, to Efficient Operation and Sanitation, Problems of Management, and Public Relations. Saturday morning was devoted to Food Standards and Financial Control. Commercial and government films, demonstrations, educational exhibits, and trips rounded out the management picture and justified the enthusiastic approval of the attendance. There was gratifying coverage of the sessions by the Boston papers despite the predominance of strikes and troubled world situations.

The speakers for each session read like a "Who's Who," each a distinguished authority, so that one cannot be mentioned without mentioning all. A few copies of the program are still available on request. They may be secured from the Chairman of the General Arrangements Committee, Alice M. Fenno, Director of Dining Halls, Graduate School of Business Administration, Harvard University, Soldiers Field, Boston.

Peaches to Be Plentiful This Year. It is estimated that the 1946 peach crop will be the second largest on record. A harvest of 81,065,000 bushels is expected as compared with the record crop in 1945 of 81.6 million bushels and a ten-year average of less than 60 million bushels. Marketing specialists believe that there will be a plentiful supply of peaches in most retail markets during the latter part of July, and in the midwestern and northern states during August and particularly just before and after Labor Day week-end.

The USDA has announced the designation of the week of July 15–22 as National Home Food Preservation Week. There is every indication that this will inaugurate a record season for preservation of food, particulasly peaches, which will be in plentitul supply at a time when food supplies are so badly needed throughout the world.

Veterans Administration Dietetic Service. The new pamphlet *Dietitians Are Needed for Veterans Hospitals* carries as its slogan "Serve Those Who Served." In an open letter, Dr. Paul R. Hawley, Chief Medical Director, states that the Veterans Administration is embarking on the largest medical program in the history of the United States. Dr. Hawley goes on to say, "To you in the profession, the Veterans Administration offers opportunity. It is an opportunity that includes association with fellow workers of high professional standards, professional development, and the satisfaction of aiding the men and women who served our country in war."

Education and experience requirements are fully outlined (May JOURNAL, p. 474). The duties conform to those for dietitians in the finest civilian hospitals. The salary scale, effective July 1, 1946, ranges from $2,644 at the P-1 classification to $5,905 at the P-4 level. Veterans Administration dietitians are classified as professional personnel under United States Civil Service. An annual salary deduction of $480 minimum is made for subsistence and on-station quarters, when occupied. For dietitians living off station, $109 is deducted for one meal a day.

Dietitians who are interested in applying for positions in Veterans Hospitals should submit complete information together with United States Civil Service Commission Form #57. Applications should be submitted to the Personnel Director or the Assistant Administrator for Personnel, Veterans Administration, Washington 25, D. C. Applications may also be sent to Managers of Veterans Administration Hospitals in specific cities.

American Home Economics Association. The 37th annual meeting of the American Home Economics Association was held at Cleveland, June 24–27. The theme of the program was "Better Professional Workers for Better Homes, Happier Family Life." Those attending the meeting soon found themselves back in pre-war convention tempo. One of the general sessions dealt exclusively with recruiting home economists through a job well done. Representative home economists presented the fields of teaching, homemaking, business, extension service, and research. The importance of College Clubs and 4-H Clubs was stressed. Dr. Muriel W. Brown, U. S. Office of Education, outlined Plans for a National Conference on Family Life. The Association's interest in the consumer was presented at an evening general session. The International Responsibilities of the American Home Economics Association were discussed at still another general session at which time Frank L. McDougall, special adviser to the Director-General of FAO spoke on Food in the International Situation; Dean Margaret Justin, Kansas State College, discussed Understanding Our Responsibilities and Marjorie M. Heseltine, U. S. Children's Bureau talked on Introducing Our Foreign Fellows. On the last day of the convention there was a program on Benefits to the Nation's Families Through Research. Winona Morgan, Pennsylvania State College, discussed Research in Child Development; Mildred L. Stenswick, Bureau of Human Nutrition, spoke on Housing; Earl C. McCracken, Bureau of Human Nutrition, discussed Equipment Research; Cleo Fitzsimmons, Purdue University, covered Research in Family Economics; and Mary Louise Collings, U. S. Extension Service, presented the subject of Research in Adult Education Methods.

The fifteen divisions and departments held their regular sessions and conducted business meetings.

A highlight of the Association's business meeting on Wednesday, June 26, was the presentation of the Borden Award. W. A. Wentworth, the Borden Company, announced that the Borden Award Committee of the American Home Economics Association recommended the approval of Dr. Ruth Blair, University of Colorado, as the winner for 1946. Dr. Blair's research was on Results of Providing a Liberally Adequate Diet to Children in an

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Institution. I. Acceptance of Food and Changes in the Adequacy of Diets Consumed. L. J. Roberts, Ruth Blair and Marjorie Greider. J. Pediat. 27: 393, 1945. II. Growth in Weight and Height, Ruth Blair, L. J. Roberts, and Marjorie Greider. J. Pediat. 27: 410, 1945.

Modern Margarine Fact File. The National Association of Margarine Manufacturers, Washington, D. C., present an attractive collection of leaflets concerning modern fortified margarine. The collection includes a quantity recipe booklet *Serve A Good Lunch*, a *Classroom Quiz on Fortified Margarine*, and *The Story of Modern Margarine*. The material may be obtained in quantities upon request.

Colorado State Hospital Stresses Community Nutrition. Mrs. Cora E. Kusner, Chief Dietitian at Colorado State Hospital at Pueblo, has included community nutrition work as a valuable phase of the training offered to student dietitians. The service is voluntary and is extended to all agencies of the Pueblo Council of Social Agencies. One of the first welfare cases provided students with an opportunity to assist a motherless 15-year-old girl in meal planning and buying for her family. The field work for the student dietitians is under the supervision of Mary Margaret Vail, assistant dietitian.

Edward B. Passano, President of Wavery Press, Inc., passed away in June. Mr. Passano had long been known as a publisher of internationally known books and periodicals. The American Dietetic Association feels the loss of Mr. Passano, for the Waverly Press has published the JOURNAL since its very beginning.

Contribution to A.D.A. Scholarship Fund. The Tidewater Dietetic Association of Norfolk, Virginia has informed the Association that they will contribute a $25 Victory Bond to the A.D.A. Scholarship Fund.

The Canadian Dietetic Association met for its eleventh annual convention at the Royal York Hotel in Toronto, June 9–13, 1946. This was the first convention and exhibition held since the beginning of the war in 1939.

The proceedings opened with a garden tea on Sunday, June 9, where the members were guests of the Toronto Dietetic Association.

A highlight of the annual dinner was the presentation of a portrait (Artist, Mr. A. Sherriff Scott, R.C.A.) of Wing Officer Kathleen L. Jeffs, M.B.E., Chief Messing Officer for the R.C.A.F., to the University of Toronto. The portrait was received on behalf of the University by Dr. Jessie B. Brodie, Professor of Household Science. At this time a list was read of twenty-one members of the Association who received official recognition of their service in the Armed Forces and mention in dispatches. Five of these members received the M.B.E. (Member of the Order of the British Empire).

Greetings from the American Dietetic Association were brought by Mrs. Bessie Brooks West, President.

Officers elected for the year 1946–47 were: Jessie B. Brodie, University of Toronto, honorary president; Mabel Patrick, University of Alberta, honorary vice-president; Marjorie Bell, immediate past president; Dorothy McNaughton, Toronto General Hospital, president; Kathleen Jeffs, T. Eaton Company, Quebec, president elect; Jean Macdiarmid, St. Annes' Hospital, Quebec, vice-president; Enid Smith, University of Toronto, treasurer; Dorothy Shantz, Toronto Department of Public Health, secretary.

The following directors were appointed for a 1 year term: Dorothy Lefebvre, University of British Columbia; Muriel C. Harvey, University of Alberta Hospital; K. O'Callaghan, St. Paul's Hospital, Saskatoon; Corine Trerice, Canadian Red Cross Society, St. John, N. B. Those appointed for 2 year term were: Marion Gilchrist, Hudson Bay Co. Ltd., Manitoba; M. St. C. Clark, Department of Veterans' Affairs, Ottawa; Laura Jameson, Henry Morgan Co. Ltd., Montreal; Sister Irene Marie, Halifax Infirmary.

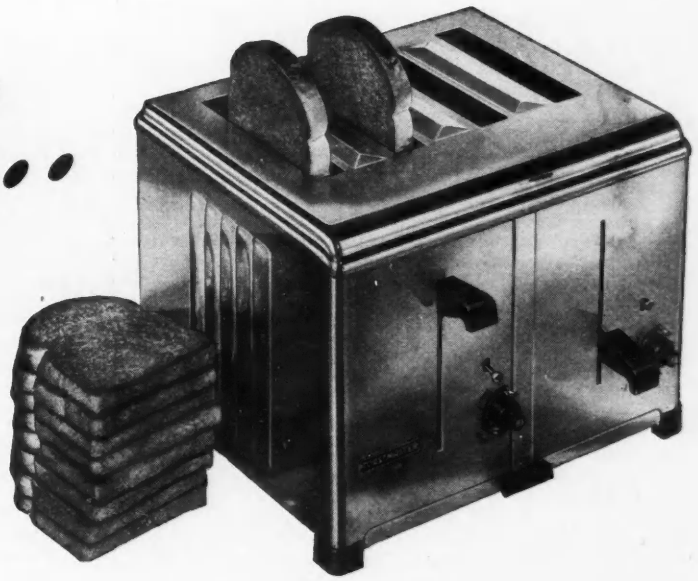
Course in Restaurant Administration. The conference of Modernization of Food Service Facilities and Operations in the Restaurant Industry offered on July 17–19 by the School of Business of the University of Chicago in cooperation with the National Restaurant Association was attended by 150 restaurant managers and food service directors. On the first day Alberta M. Macfarlane discussed Factors That Influence Restaurant Locations. The restaurant atmosphere from the standpoints of appearance, decoration, lighting, color and harmony was presented by John W. Root and J. W. Thomson of Chicago and by Ernst Payer of Cleveland. The dining room and kitchen were centers of interest on the second day; types of food service and layout were presented by Fred Schmid of Los Angeles and New Developments in Furnishings and Materials by Marianne Willisch of Chicago. Sam V. Wells of Chicago discussed Space Allocation and Layout for Operating Functions and Mrs. Orpha Thomas presented Work Organization and Flow of Work. The last day was devoted to new developments in equipment, freezing and refrigeration, ventilation, dishwashing and food preparation. The speakers were Mark Mooney, Syracuse, New York; Carlton Lawler, Dallas; Gurdon Flagg, Pittsburgh; and Samuel R. Lewis, Dr. Gail M. Dack, Jack W. Porte and I. S. Anoff, all of Chicago.

Manual for School and Institutional Lunch Rooms has been newly revised and will be ready for distribution on September 1 according to an announcement by the Ohio Dietetic Association. New recipes have been added, the latest food facts have been incorporated and the most recent school lunch projects are discussed. The price will be $2.00 per copy; for orders of three (3) or more—$1.85 per copy.

Film of Freezing Fruits and Vegetables. A natural-color movie with sound, "Freezing Fruits and Vegetables," made under the supervision of the Bureau of Human Nutrition and Home Economics is available for loan from State Agricultural Extension Service or State University Film Libraries. Requests should be made as far in advance of show dates as possible. The borrower is usually required to pay transportation charges plus a small service charge. The film shows how to prepare and package fruits and vegetables in home freezer or in commercial locker plant. It illustrates step-by-step recommended methods for corn, broccoli, strawberries and peaches. It answers questions concerning scalding of vegetables, sweetening of fruits, prevention of darkening of fruits and the scalding of containers.

Model Food Departments in Large Army Hospitals. Special mention was given Brooke Convalescent Hosptal, Brooke Army Medical Center, Fort Sam Houston, Texas and Fitzsimons General Hospital, Denver, by a civilian food survey committee appointed by Secretary of War Robert P. Patterson. The committee made a nationwide study of food conditions in 250 messes ranging in size from those serving 50 men to those accommodating 6,000. They inspected the Army food program from the training of mess personnel to the storage of food. The report stated: "Exceptional messing installations were noted at the Convalescent Hospital of Brooke Army Medical Center and Fitzsimons General Hospital. These might well serve as models in future planning."

Now...



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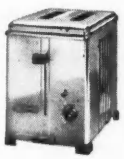
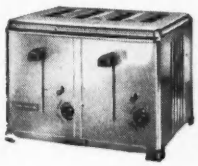
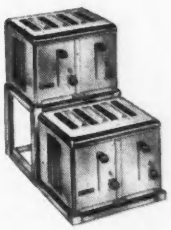


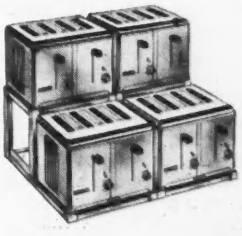
THE 2-SLICE "Toastmaster" toaster is ideal for small fountains and lunch rooms. Requires only 6¼" of counter space—yet toasts more than 125 slices per hour. Heavy-duty construction insures years of trouble-free operation. Current turns "on" when bread is lowered. The instant toast is done to perfection, slices pop up, current shuts "off."



THE 4-SLICE model pops up more than 250 golden-brown slices of perfect toast per hour—over 4 slices per minute. The ideal toaster for restaurants, fountain luncheonettes, cafeterias, hotel and institution kitchens. To save current, each 2-slot section is individually controlled. Completely automatic—requires no watching.



THE 8-SLICE toaster turns out over 500 slices per hour—over 8 slices per minute—in less than a foot of counter space. Just right for the busy restaurant, soda fountain, or institution. Combining two 4-slice "Toastmaster" toasters and a stainless steel Duo-Stand, this model gives volume toast production where space is at a premium.



THE 16-SLICE "Toastmaster" toaster pops up more than 1000 slices of toast per hour—over 16 slices per minute. Perfect for the volume requirements of institutions, military establishments, larger hotels, and restaurants. Compact! Requires less than two feet of counter space. Fully flexible, composed of 4-slice units that can be added or used elsewhere as conditions dictate.

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New Medical Director Appointed. Dr. Hart E. Van Riper, of Scarsdale, New York, has been appointed medical director of the National Foundation for Infantile Paralysis. In making this announcement Dr. Basil O'Connor, the organization's president, said that the appointment was made to fill the vacancy created by the death of Dr. Don W. Gudakunst. Dr. Van Riper is widely experienced in public health and welfare administrative work. He has been on the National Foundation's staff since last October. Before joining the Foundation staff he was medical director of the Jackson Memorial Hospital, Miami, Florida, and prior to that he was assistant director for maternal and child health in the U. S. Department of Labor, Division of Health Services.

New Oral Protein Digest Containing the Essential Amino Acids Announced by Wyeth. Wyeth, Inc. has announced a new oral protein digest product, Lactamin, which contains all of the amino acids essential for maintaining the body at proper protein level. Made from lactalbumin of milk, Lactamin is a highly-concentrated palatable protein digest in powder form for oral use in restoring blood protein and tissue protein after operations, childbirth, shock, serious burns and injuries; and for use in a host of infectious diseases and chronic ailments where disturbance of the body's protein metabolism has seriously affected its normal protein intake and reduced its level of supply. Lactamin comes in 16 oz. tins and Wyeth is distributing the product nationally.

Florida Dietetic Association. At the annual meeting of the Florida Dietetic Association at St. Augustine the following officers were elected for 1946–1947: Edith Manford, Florida State College for Women, president; Eunice Grady, Miami, vice-president; and Leona Rehbinder, Fort Mead, secretary-treasurer.

Indiana Dietetic Association. The May meeting of the Indiana Dietetic Association was held at the Methodist Hospital in Indianapolis. Dr. C. G. Weigand, head of the Medical Department of the Medical Division, Eli Lilly & Co., gave a paper on "Protein Therapy." Jean Crooks gave a report on the clinical application of protein therapy as used at the Indiana University Medical Center. A business meeting and tea followed with Ruth Madsen, Chief Dietitian of the Methodist Hospital and President of the Association, presiding. LeVelle Wood and Robert E. Neff were the speakers at the dinner meeting at the City Hospital. Miss Wood, Associate Professor of Institutional Management at Kansas State College, Manhattan, gave a very interesting talk on her twenty-one months' experience overseas with the American Red Cross. Mr. Neff, Superintendent of the Methodist Hospital and a member of the Advisory Board of the American Dietetic Association, gave a talk on "The Dietitian's Place in the Hospital."

Kansas Dietetic Association. *Elizabeth Huey* of Atchison is at present assistant supervisor of the Tea Room of the L. S. Ayres Department Store, Indianapolis. She had been employed at the Glenn Martin Bomber Plant, Fort Crook, Nebraska. *Marion Truhlson* is the dietitian at Corbin Hall at the University of Kansas. She received her degree from the University of Nebraska and interned at Massachusetts General Hospital. *Sister Ethelburg Leuschen*, who received her master's degree at Kansas State College and has been teaching Red Cross nutrition courses, is now teaching foods and nutrition at Mount St. Scholastica College, Atchison. *Mary Kathryn Potter* is a new staff member at Stormont Hospital in Topeka. Miss Potter is a graduate of Southwestern College at Winfield in 1942. She did post-graduate work at Kansas State College and taught school for two years. Recently she was associated with Pratt Whitney Company in Kansas City. *Sister M. Romana Farrell* is exchange professor for the summer session at the College of St. Scholastica, Duluth, Minnesota. She has been teaching institution management and diet in disease at Mount St. Scholastica College.

Officers of the Greater Kansas City Dietetic Association for 1946–1947 are as follows: Ruth Gordon, University of Kansas Hospitals, president; Marilyn Miller, St. Luke's Hospital, vice-president; Ina Belle Zimmerman, Bethany Hospital, secretary; and Margaret Pettijohn, Myron Green Cafeterias, treasurer.

Maryland Dietetic Association. Graduation exercises for student dietitians of the Johns Hopkins Hospital were held in Phipps Garden on June 28. Dr. Edwin L. Crosby, director of the hospital, gave the students their certificates. After the ceremony, refreshments were served to members of the graduating classes and their families, dietary and nursing staffs, and to administrative and medical staffs of the hospital.

Alice L. Beardsley, Liana Cernoia, Doris Driggs, Jane Harrell, Louise McKenney, Jeanne Neale, Martha Lee Riggs, Elizabeth Stenborg, Celia Whitney, Elizabeth Manthey, Dorothy Miller were in the July Graduating Class; Dorothy Bemis, Judith Gold, Marion Moulton, Helen Murray, Virginia Wall, and Kathryn Wells in the September Class. Misses Whitney, McKenney, Harrell and Wall will remain on the dietary staff.

The following students began their student course at Johns Hopkins Hospital June 26; Mary Ackley, University of Colorado; Mary T. Ford, University of Wisconsin; Florence Gregoric, Michigan State College; Barbara Gross, Simmons College, Boston, Mass.; Patricia Hagan, University of Idaho; Helen Jaffurs, Carnegie Technological Institute, Pittsburgh; Mary L. Jones, College Misericordia, Dallas, Pa.; Ruth McDonald, Ohio State University; Grace McQuiness, University of Washington; Jean Miller, Framingham College, Framingham, Mass.; Ruth Mittelstaedt, Montana State University; Marilyn Musburger, University of Minnesota; Rachel Quarles, Winthrop College, South Carolina; Ruby Ramsey, Texas College of Arts and Industries; Irma June Sunderland, Oklahoma College for Women; Eugenia Vlad, Western Reserve University, Cleveland.

Martha Houghtaling resigned from the Johns Hopkins University staff on June 15.

Dr. and Mrs. James Mason, Birmingham, Alabama, announce the birth of a son, Clive McMurchy on June 26, 1946.

Margaret Ann Price of Madison College, *Emma Lou Broadwater* from West Virginia University, and *Elizabeth Weiss* of Drexel Institute are in the dietary department of Sinai Hospital of Baltimore this summer for their work experience.

Michigan Dietetic Association. Mary I. Barber was a member of a panel at one session of the Radio in Education Conference sponsored by Ohio State University. Mr. Chester Davis, chairman of the Famine Emergency Committee and Mr. Paul Willis, president, Grocery Manufacturers of America, were the speakers before the panel discussion. Mrs. Alma Kitchell, president, National Association of Women Broadcasters, presided. In line with ADA's suggestions, the Press Relations Committee of the Michigan Dietetic Association has tried to carry on a constructive program. A scrapbook has been started which will show the news items sent to the chairman by members throughout the state. The publicity given to the annual meeting held in Battle Creek was most gratifying (51 inches

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B-V NOODLE SOUP—QUANTITY

INGREDIENTS	6 SERVINGS	25 SERVINGS	100 SERVINGS
Noodles, broken..	¾ cup	6 oz. (3 cups)	1½ lb.
Margarine.....	3 tbsp.	¾ cup	1½ lb.
Boiling water.....	6 cups	6 qts.	6 gal.
Wilson's B-V.....	3 tsp.	3 oz. (4 tbsp.)	12 oz. (1 cup)
Volume.....	6 cups	6 quarts	6 gal.

Add noodles and margarine to boiling water and simmer, covered, until tender. Add B-V which has been dissolved in a small amount of the hot cooking liquid. Add salt, if desired, to suit taste. Approximate cost per serving: 2 cents.

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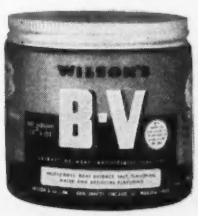

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including a photograph of officers). It has been suggested that each member of the Association assemble material in a folder to include her photograph, biography, and professional affiliations. When invited to meet with any group, a copy of her speech can be added and the folder sent for use in connection with publicity for the meeting. Many members of the Michigan Dietetic Association as well as several out-of-state members attended the Inservice Training Course on "The Relation of Nutrition to Maternal and Child Health" offered by the University of Michigan School of Public Health on June 5 and 6. Adelia Beeuwkes, president of the MDA and instructor in Nutrition in the School of Public Health, was instrumental in initiating and planning the course. Recent publications from the Foods and Nutrition Department of Michigan State College include: *Burbot Fish Recipes* by Helen Baeder and *Fruit Purees* by Dr. Pauline Paul. Studies on the nutritine value of fish from Michigan waters carried on at the Michigan Experiment Station were reported not long ago in *Food Research* under the title, "Nicotinic Acid of Lake Herring, Carp, Common Suckers, and Burbot."

Ohio Dietetic Association. *Miss Verdi D. Miller*, former chief dietitian at the Veterans Administration Hospital, Dayton, has received an appointment as chief of the Ohio, Michigan, and Kentucky area of Veterans Administration, with an office in Columbus.

Mrs. Evelyn Hemler Mahoney, formerly of St. Elizabeth Hospital, Dayton, is now living in Chicago, Illinois.

Mrs. Richard S. Corvin, former Army dietitian, has accepted the position at St. Elizabeth's.

Aura D. Louhi, former Army dietitian at the Regional Hospital, Patterson Field, has accepted a position at the Hospital of the Good Shepherd, Syracuse, New York.

Mildred Miller was recently appointed supervisor of the dining rooms for the Elder and Johnston Company department store, Dayton.

Lt. Dorothy Downing, dietitian at Patterson Field Regional Hospital, was transferred to Dayton after 18 months service at the Davis-Monthan Field Hospital, Tucson, Arizona.

Mrs. Arthur Heigert, formerly Betty Crandall, transferred from Wright Field to the Frigidaire Corporation, Dayton.

Newly-elected officers of the Dayton Dietetic Association include: Henriette Pribnow, Miami Valley Hospital, President; Catherine Goette, Good Samaritan Hospital, President-elect; Marguerite Krebs, Dairy Council, Secretary and June Hudson, Good Samaritan Hospital, Treasurer.

At a recent meeting of the Akron Dietetic Association, Mr. Black of the City Health Department told about a food handling course which is being taught by that department. He also gave pointers on how to wash cooking utensils properly, and showed an excellent colored film on proper dishwashing methods.

Next year's officers of the Akron Dietetic Association are as follows: Ellen Martin, Children's Hospital, President; Julia Dearch, Dairy Council, Vice President; Frances Hooker, Peoples Hospital, Treasurer.

Josephine Weigley, discharged veteran, is head dietitian at City Hospital. Miss Weigley served in several camps in the middle west.

Martha Hunsicker, a graduate of University Hospitals, Cleveland, is now at City Hospital, Akron, as a therapeutic dietitian.

Barbara Robb, now supervisor of private room service at City Hospital is a graduate of Iowa State University and of Michael Reese Hospital.

Mary Madden, veteran of the African campaign, is a new therapeutic dietitian at City Hospital.

Frances Tolsen, City Hospital staff, was married June 15 to Lt. Richard Swartzel at the Woodland Methodist Church.

Most of the members of the Akron Dietetic Association attended a National Livestock and Meat Board lecture. There were three "if's" in the minds of those present: 1. If there were an adequate meat supply. 2. If the meat could only be cut as recommended. 3. If there could then be precision carving at the time of service.

Recent staff changes of the University Hospitals, Cleveland are: *Elizabeth Persing*, Food Administration; *Marion Whittier*, Personnel; *Lucille Bricker*, assistant in Food Administration; *Jean Heeley*, assistant in Personnel Service; *Margery Dewar*, assistant in Hanna House Private Service; *Mrs. Mary Louise Black*, relief dietitian in therapeutics.

Mary Ann Sweet, formerly assistant at Hanna House, was recently married to James Gill.

Julia Adams, formerly in Food Administration, was married to William Roberts.

Students who entered the training course at University Hospitals, Cleveland on April 8 were: Virginia Black, University of Minnesota; Sarah Anne Ling, Colorado University; Mrs. Mary Madison, Bradley Polytechnic Institute; and Martha Simons, Iowa State College.

Four students of the Christ Hospital, Cincinnati, training course completed their training July 1: Miss Leolyn Wilcox will return to Christ Hospital as relief dietitian; Miss Susan Finkbine hopes to obtain a position in her native state of Iowa following three months' relief at Christ Hospital; Miss Arvilla Sutton plans to work near her home, Fargo, North Dakota; Miss Anne Davis accepted a position as an assistant administrative dietitian, Indiana Medical Center, Indianapolis.

Mrs. Ruth Hudson, former relief dietitian at Christ Hospital, Cincinnati, left for San Juan, Puerto Rico, June 10 to join her husband, Dr. Harry Hudson, for a year's residence there.

Oregon Dietetic Association. This association met in May at the Y.W.C.A. building in Portland. The evening program was arranged by the student dietitians from the two approved courses in Portland. The guest speaker was Dr. H. Hershey of the University of Oregon Medical School. The subject of his address was "Protein Nutrition." Following Dr. Hershey's address Mrs. Betty Jensen, Multnomah County Hospital, served samples of high protein feedings. She had added several commercial concentrates and skim milk powder to various desserts and beverages to increase their protein value. The products were added in varying amounts to see how high the protein value could be raised without destroying the palatability of the feeding.

Roneta Reddy, Good Samaritan Hospital, and Mrs. June Yerrington, Multnomah County Hospital, were co-chairmen of the meeting. The student dietitians from Good Samaritan Hospital who assisted with the meeting were: Vera Liebetrau, Madison, Wisconsin; Helen Waxler, Seattle, Washington; Bonnie Jean Brown, Cataldo, Idaho; Helen Olson, Buxton, North Dakota; and Margaret Pittenger, Salt Lake City. Students from University of Oregon Medical School Hospitals included Helen Doyle, Madison, Wisconsin; Jackie Hewitt, Butte, Montana; Mrs. Betty Jensen, Maquoketa, Iowa; Helen Cary, Portland; Beth Nobel, Wichita, Kansas; and Marjorie Gray, Salt Lake City.

Pennsylvania Dietetic Association. At the business meeting of the Pennsylvania Dietetic Association held on May 2 the following officers were elected for 1946–47: Margaret A. Neubert, Friends Hospital, Philadelphia, president; Frances L. Swenson, Elizabeth Steel Magee Hospital, Pittsburgh, president-elect; Evelyn A.Carpenter, Philadelphia Hospital for Contagious Diseases, vice-

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president; Lillian Hack, Drexel Institute of Technology, Philadelphia, secretary; and Ruth M. Reuning, Shadyside Hospital, Pittsburgh, treasurer. The representatives to the House of Delegates are: Anna dePlanter Bowes, Department of Health, Harrisburg; Dorothy O'Brien, Mercy Hospital, Scranton; Anna P. K. Stapler, S. E. Chapter American Red Cross, Philadelphia; Irma L. Walker, Reading Hospital; Alice Yakulis, H. J. Heinz Company, Pittsburgh; and Regina K. Breig, Westmoreland Hospital, Greensburg, elected for one year to fill an unexpired term.

The May issue of the *Bulletin* of the Pennsylvania Dietetic Association reports that at the time of the annual convention held at Harrisburg, three emeritus members were honored: Mary E. Huhn, Rena S. Eckman, and Helen E. Gilson. Miss Huhn recently retired after forty-two years as dietitian at Moses Taylor Hospital in Scranton. She was the first dietitian to be employed in a hospital in Pennsylvania. Miss Huhn, a native of Michigan, graduated from State Teachers College, Ypsilanti, Michigan, and from Sarah Tyson Rorer School of Home Economics in Philadelphia.

Rena S. Eckman, a Pennsylvanian, received preparation for teaching at Indiana State Teachers College in Pennsylvania and graduated from Drexel Institute. She received the Master of Science degree at Teachers College, Columbia University. Her career has included experience as a teacher, as dietitian at Massachusetts General Hospital, Boston, Director of Housekeeping and Dietetics at the University of Michigan Hospital, Ann Arbor, and Director of Dietetics at Michael Reese Hospital, Chicago. She became Director of Dietetics at Montefiore Hospital in Pittsburgh in 1926, holding that position until her retirement fifteen years later. During her professional life, Miss Eckman witnessed several important milestones of progress —the Lake Placid Conferences which resulted in the Home Economics Association, and the organization of the American Dietetic Association. She wrote a paper for the first meeting of the American Dietetic Association in Cleveland and served as one of the early vice-presidents.

Helen E. Gilson was formerly Director of the Dietary Department of the Pennsylvania Hospital in Philadelphia. She was one of the early dietitians and was a pioneer in developing a course for student training in hospital dietetics and dietary administration. Largely through her interest and leadership the Philadelphia and Pennsylvania Dietetic Associations were organized. Before going to Pennsylvania Hospital, Miss Gilson held supervisory positions at Harper Hospital in Detroit, University of Pennsylvania and Jefferson Hospital in Philadelphia. Miss Gilson lives in New Hampshire and helped to organize the New Hampshire Dietetic Association.

Central Pennsylvania. Annabelle Watts has taken the position of chief dietitian at the Williamsport Hospital. Also on the staff are Mary Jane Hoskins and Miss Cowdrick. Mable Pluemacher, former dietitian at Williamsport Hospital is now associated with Lewistown Hospital.

Philadelphia. Evelyn Carpenter was appointed to represent the A.D.A. at the inaugural ceremonies for Dr. James Creese, the new president of Drexel Institute of Technology. Anne Stapler and Evelyn Carpenter talked on "Dietetics as a Profession" at a Freshman Vocational Conference at Drexel Institute in April. Elva Burtch and Ruth Justin, former army dietitians, are in the Metabolic Department of Philadelphia General Hospital. Martha Tarbox, formerly at Pennsylvania Hospital, has returned from overseas and is now Mrs. Thomas White. Announcement has been received of the marriage in April of Miriam Williams to Lawrence VanCleve Mott. Lila Hainer has resigned as Head of Institutional Administration at Drexel Institute.

Pittsburgh. Omicron Nu of Pennsylvania State College sponsored a "Career Day" in May for all Home Economics students. Irene L. Willson represented the field of Institutional Management.

Mrs. Aleta Sims Gehres is therapeutic dietitian at Shadyside Hospital. She is a graduate of Maryville College in Tennessee and of Miami Valley Hospital, Dayton. Elizabeth Colbert, a former Allegheny General student, is on the staff as therapeutic dietitian. Anne Maloney is assistant administrative dietitian at Allegheny General Hospital. On March 11, Irene Willson spoke for the American College of Surgeons' sectional meeting in Pittsburgh. Her subject was "Dietary Service." Mrs. Grace Metzger is assistant administrative dietitian at Shadyside Hospital. She is a graduate of New York State Agricultural and Technical Institute, Canton, New York. Maxine Armstrong, formerly a Captain in the Medical Department of the Army, is assistant administrative dietitian at Elizabeth Steel Magee Hospital. Warrine Swingle, a former army dietitian, is administrative dietitian at Montefiore Hospital. Anna Kukie, a graduate of Carnegie Institute of Technology, has returned after two and one half years' service as chemist with the Navy, to begin student training at Allegheny Hospital.

West Virginia Dietetic Association. The fifth annual meeting of the West Virginia Dietetic Association was held at the McLure Hotel, in Wheeling, May 25. At the opening session Dr. William Sheppe, Wheeling Clinic, spoke on "Diet in Diabetes Mellitus." Dr. Sheppe stated that the characteristics of a diabetic diet depend upon the following points: weight of patient, sufficient energy for work, satiety of hyperlipemia, and vitamin value of foods. Ruth Noer, Head of Home Economics Department, West Virginia University, Morgantown, spoke on "Survey of Choice in Home Economics as a Profession." Miss Noer reported that from a survey of many states only 21.5 per cent of the requests for dietitians were filled in 1945, while 62 per cent were filled in the teaching field. She expressed the need for recruiting students for the home economics fields. Miss Noer also read reports of students on why they chose dietetics as a profession and on the value received from summer work in hospitals. Ona Stinson, dietitian, McMillan Hospital, Charleston, spoke on "The Use of the Bland Diet." She gave some modifications of the bland diet for specific diseases. At the dinner meeting Georgia Hess, Educational Director of the Hazel Atlas Company, Wheeling, spoke on "Let's Start with Breakfast." The Economics Laboratory Company showed an interesting and educational movie on "Dishwashing Dividends." A business meeting and election of officers were conducted by Margaret Joseph, president. Officers for 1946–1947 will be: Dorothy Franz, Monongalia General Hospital, Morgantown, president; Ona Stinson, McMillan Hospital, Charleston, vice-president; Marguerite Watkins, Williamson Memorial Hospital, secretary; Mrs. Gwendolyn Goldston, West Virginia State College, Institute, treasurer; and Margaret Joseph, St. Joseph's Hospital, Parkersburg, delegate. The association plans to hold its annual meeting in Morgantown next year.

News about members. The following members of the American Dietetic Association have recently accepted new positions and appointments:

Elizabeth Goodman, formerly food production manager at the Illini Union Building in Urbana, has been appointed as director of food service at the University of Utah. Miss Goodman served overseas as a hospital dietitian. She completed approved course training at the State University of Iowa Hospitals and has held various types of positions in the dietetic field.

Hortense Allen, who until recently was nutrition field representative for the midwestern area of the American Red Cross in St. Louis, is now consulting dietitian at the Mayo Clinic at Rochester, Minnesota.